Please handle with
EXTREME CARE
This volume is ***brittle***
and CANNOT be repaired!
Photocopy only if necessary
Return to library staff, do not in bookdrop
GERSTEIN SCIENCE INFORMATION CENTRE
Library staff, please retie with black ribbon and reshelve

Digitized by the Internet Archive
in 2007 with funding from
Microsoft Corporation

http://www.archive.org/details/canadianhorti27a28stcauoft

49996.

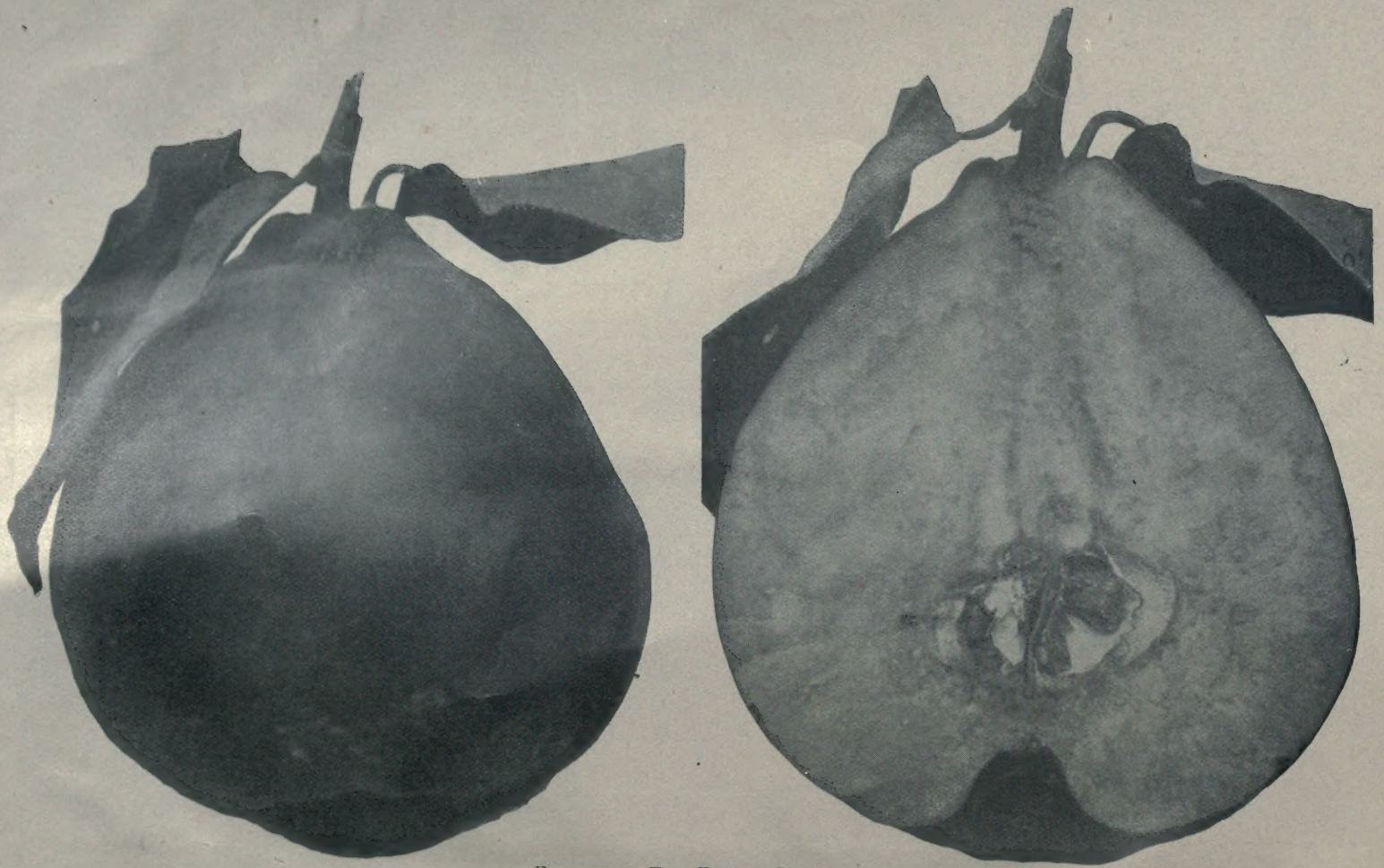


FIG. 2710. THE FULLER QUINCE.

P
Agric
C

570141
6-10-53

The Canadian Horticulturist

JANUARY, 1904 = 1905

VOLUME XXVII = 28

NUMBER 1

UNIVERSITY OF TORONTO LIBRARY

THE FULLER QUINCE

AMONG several varieties of quinces fruited at Maplehurst in 1903, was the Fuller, a sample of which we had photographed for use as a frontispiece to this number.

The variety is named after Mr. A. S. Fuller, of Ridgewood, N. J., who noticed it fruiting on a neighbor's grounds in about the year 1870, took some cuttings and introduced it to public notice. It may be described as follows:

TREE: A good grower and showy both in fruit and flower.

FRUITS Large, 3¾ x 4 inches; distinctly pyriform in shape, sometimes with an elongated neck, somewhat ribbed.

COLOR: A rich yellow; calyx set in a deep wide basin.

FLESH: Tender in texture; flavor good.

SEASON: Last of September.

VALUE: Market, good; home uses, good.

QUINCE CULTURE.

Quince culture is not so profitable of late years as formerly. Thirty years ago the writer had orange quinces sold in Toronto at $6.00 a barrel, and these prices soon gave such encouragement to the planting of quince orchards, both in Ontario and in New York state, that the markets were soon overstocked, and the price came down to $2 and $3 a barrel. This season the demand was a little better, and no doubt in future it may pay fruit growers to cultivate this fruit on a moderate scale.

In planting quinces for profit care must be taken to secure the Orange or one of its subvarieties, such as Fuller, Meech's Prolific or Champion. These are all satisfactory, both as to beauty of fruit and productiveness of tree. The Angers, or common quince, is useful as stock on which to dwarf the pear tree, but the fruit is small and unsalable, and the tree often unproductive.

The propagation of the quince is very simple, and if one has a few trees the number may easily be increased, either by encouraging the growth of suckers or by cuttings, which take root very readily.

The quince orchard should be planted on good rich soil, not too dry. If the land will produce 100 bushels of potatoes to the acre, or 50 bushels of corn, it will do for quinces; otherwise the best results need not be expected. Pruning must not be neglected or the heads will become a tangled mass, and the crop will be most disappointing; but, generally speaking, no fruit tree receives less attention in regard to the details of cultivation and pruning than the Quince. Fig.

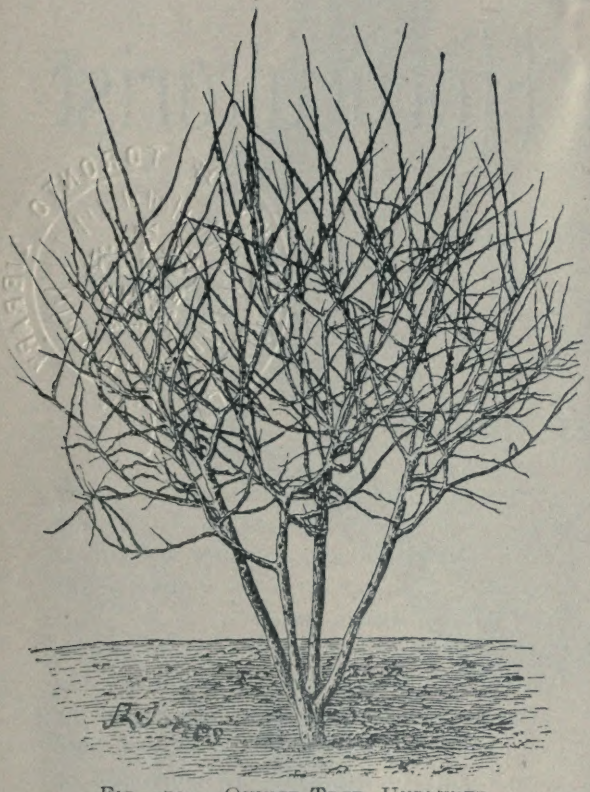


FIG 2711. QUINCE TREE, UNPRUNED.

2711 shows a quince tree as it is usually permitted to grow, without much pruning: while Fig. 2712 shows the same tree pruned out as it should be sometime before spring growth begins.

A mistake is often made in planting quince trees too close together. One orchard we have visited was set about ten feet apart each way, and in consequence cultivation ceased after a few years, and a more disreputable plot could not be imagined. It is better to plant quince at least 12 feet apart each way, and then give them first-class cultivation, going two ways with disk and an Acme harrow. A plow should not be used in a quince or in a dwarf pear orchard, because the quince roots are surface feeders, and if cut closely the trees will be stunted in growth and perhaps be blown over with the first heavy wind storm.

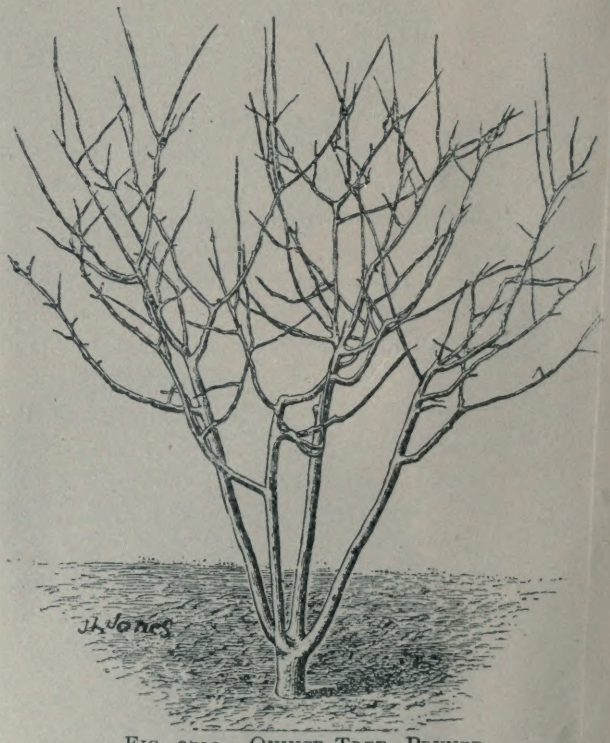


FIG. 2712. QUINCE TREE, PRUNED.

THE GARDEN

(From Country Life in America.)

Have you thought how, cheerily, day to day,
The thankless air perfuming,
Tho' often stripped of its blossoms gay
The garden keeps on blooming ?
How never it stops when its choicest rose
From its very heart is ravish'd,
But richer and fuller its buds unclose,
And its incense sweet is lavish'd.

Editorial Notes and Comments

A Happy and Prosperous New Year to all the readers of the Canadian Horticulturist.

* * *

A contented mind may conduce to happiness, but both enterprise and industry are essential to prosperity.

* * *

Cold Storage of some kind is almost a necessity both on the farm and in the orchard, and no enterprising farmer or fruit grower will neglect to provide this convenience if he can at all afford the expense.

* * *

Ice should be cut and stored early in the winter when at its best. Only ice from pure water should be stored for house uses; but for producing cold air of course this point is less important.

* * *

An ice house may be built of old lumber and at a trifling cost, according to directions given elsewhere in this number.

* * *

Pruning of the apple, pear and plum trees may be done in mild days through the winter, and is labor well applied. The fruit grower is too busy in spring to give the work the time needed to make a good job.

* * *

Avoid large cuts in pruning the apple if possible, and then thin out the young wood from the outside instead of beginning at the trunk.

PACKAGES FOR NEXT SEASON.

WINTER is a good season for laying in baskets, barrels, boxes, etc., for next season's crop. Boxes can often be purchased in knock down shape at a low rate, and carried for very little freight in car lots; the nailing up can be quickly done in a shop or cellar during the winter if a form is provided for holding the ends upright.

WINTER TREATMENT OF PEAR BLIGHT.

EVERY pear grower should be on the alert against this terrible destroyer of his finest trees, and now is the time to prevent its ravages. The blight does not spread in winter, but the tiny organisms which cause this fatal disease lie dormant but alive in the blighted branches until spring. Then, as soon as the sap begins to move, these bacilli become active and find their way to the exterior of the infected branches either through the exuding sap, or, later, through the opening blossoms and are carried to other trees by wind or bees.

Clearly then the only safe thing to do is carefully to cut off in winter every branch which shows indications of the presence of blight.

BITTER ROT AND APPLE CANKER.

THE Bitter Rot, which a short time ago was unknown in Ontario, has now become widely spread among our apple orchards, and every year the damage seems to be greater than it was the previous year. Fine apples, which show very faint spots under the skin when harvested, after being stored sometimes become pitted as if attacked by smallpox and become unsalable. Bul. 44, U. S. Plant Industry, estimates the loss to the apple crop of the United States in 1900 at $10,000,000! It has been shown that this fungus is related to the apple canker, the spores of which will produce it, and vice versa, the spores of the bitter rot will pro-

FIG. 2713. THE EXPORT OF CIDER APPLES FROM ONTARIO TO FRANCE IN 1903. THE BURLINGTON WHARF AS IT APPEARED PREVIOUS TO THE ARRIVAL OF THE STEAM BARGE. THE BOXES CONTAINED ABOUT SIX BUSHELS OF APPLES EACH. PHOTO BY G. E. FISHER.

duce cankers on the diseased branches. The bitter rot attacks apples in July and August, and is most destructive in moist hot summers.

The remedy proposed is the cutting out of the canker-like areas wherever and whenever discovered; and a frequent spraying with Bordeaux until the fruit is nearly ripe.

THE RIGHT TEMPERATURE FOR STORING FRUIT

THERE is such a difference of opinion among growers, shippers, steamship men and our consignees as to the proper temperature at which fruit ought to be stored, that it is no wonder we still have trouble in shipping tender fruits to Europe. Given a steady temperature from shipping point to consignee of 33 deg. Fahr., and we could ship even our peaches with confidence.

Experiments conducted by Prof. Hutt at Guelph, and by Mr. Alex. McNeill at Ottawa, go to prove that the lower the temperature, to the point of safety, in the storage of fruit, the greater are its life processes retarded.

STORAGE OF PEARS AT 32 DEG. FAHR.

POWELL, Dept. of Agriculture, Washington, has been making an extended series of experiments with regard to the best temperature at which to keep fruit. He found Bartlett pears packed in boxes could be kept six weeks in prime condition at a temperature of 32 deg. Fahr., when stored within 48 hours after picking. Indeed, at this temperature they were found to keep in prime condition four or five weeks longer than when stored at 36 deg. F. Kieffers stored at 32 deg. F. kept three months longer at 32 deg than at 36 deg.

How does this sound in the ears of those officials who have been claiming that 40 deg. F. is a proper temperature at which to store our tender fruits for a transatlantic voyage?

WRAPPING PEARS FOR EXPORT.

FOR the export of Bartletts and Kieffers we are now fully convinced that wrapping with paper is a necessity, if we would have the best results. During the past season we have put up thousands of

boxes of Barletts for export without wrapping, because of the scarcity of labor, and because we hoped their green and firm condition would make the expense unnecessary. But we found that the chafing of pear against pear and against the wood caused slight skin blemishes, which lowered their grade from XXX to XX, and that, in this way, alone, we lost more money than we saved in wrappers. Powell's experiments showed the same result, and he says in his report :

"The chief advantage derived from wrapping Bartlett pears seems to be in the mechanical protection to the fruit rather than its efficiency in prolonging its season. Wrapping is advised for superior fruit designed for first-class trade."

For Kieffers the wrapper seems still more important than for Bartletts, because the skin blackens with the slightest bruise and decay sets in beneath it, so that this pear will keep longer from decay if wrapped than if packed without. Wrappers also serve a good purpose in preserving the bright color of the fruit, and in keeping it from wilting. Altogether, therefore, we must make up our minds that in future pears intended for export must be wrapped, even if it does increase the cost of packing.

SODA-BORDEAUX.

TO make and apply the Bordeaux, as commonly prepared, is very troublesome, and this mixture has been proved to be equally efficient and without the objectionable mechanical features of the former. At the New Jersey Station it his been prepared according to the following formula: Soda (Lewis' Lye), 1 pound can; copper sulphate, 3 lbs.; lime, 5 ounces, and water, 30 gallons.

THE CODLING MOTH.

SANDERSON (Del. Sta.) reports good results in lessening codling moth by spraying with arsenites. He tried mixtures of varying strength and found no advantage in using more than 1 lb. to 200 gals. of water. The best results were obtained with Disparene, one application of which gave 60 per cent. of benefit and two applications 87 per cent. Next came the ordinary form, known as Paris green, which, with two sprayings gave 60 per cent. of benefit; and last, arsenite of lime, which gave only 20 per cent.

SULPHUR FOR MILDEW.

FOR the ordinary, or powdery, mildew of the grape in Ontario, dusting with flour of sulphur is the remedy usually employed by our grape growers. Sometimes, however, the results seem unsatisfactory, and it is often a problem to know the reason of the failure. It may be that the sulphur was not applied in sufficient quantity, or not repeated often enough. Degrully (Exper. Sta. Record, 92, p. 53) advises "3 treatments, in which either 130 kilograms per hectare of tritutated sulphur, or 90 kg. of sublimated sulphur should be used. These figures are given as a maxima, which it is not always necessary to attain." It may be explained that a hectare is a measure of area, containing nearly 2½ acres; and that a kilogram is a measure of weight equal to nearly 2¼ pounds avoirdupois.

FIG. 2714. THE STEAMSHIP EN ROUTE FOR FRANCE LOADING WITH APPLES FOR CHAMPAGNE PURPOSES AT ONE OF THE BURLINGTON DOCKS. PHOTO BY G. E. FISHER.

OUR ANNUAL MEETING

FIG. 2715. W. H. BUNTING, ST. CATHARINES, ONT. PRESIDENT OF THE ONTARIO FRUIT GROWERS' ASSOCIATION FOR 1904.

OWING in part to the urgent request of the local horticultural society, and in part to the influence of our experimenter, Mr. W. W. Hillborn, and his brother Mr. J. L. Hillborn, our director for Essex, our annual meeting for 1903 was held at Leamington, a town of about 3,000 inhabitants, situated in the County of Essex, and within about a mile of Lake Erie. Much of the land east is rather too level for good drainage, and consequently ill suited for fruit growing, but a short distance west the ground is more elevated and of a sandy loam, well adapted for peach growing.

The attendance was excellent, and the deepest interest manifest, but it was difficult to secure good hotel accommodation and the general feeling was in favor of some permanent meeting place in future in a city, where a suitable hall could be secured for our meetings and first-class accommodation for our guests. It was therefore resolved that the meeting in 1904 be held in the city of Toronto in conjunction with the annual chrysanthemum show of the Toronto Horticultural Society, which would greatly increase the interest in the floricultural section of our meetings and largely increase the number of delegates from our horticultural societies. An apple fair on a large scale will be held at the next meeting, which, if annual, will become a most important feature and a special attraction to apple growers. If, in extension of the idea, samples of apples of XXX and Fancy XXX grades could be shown representing stock held in cold storage by growers, buyers might be induced to come, and large winter sales of fruit f. o. b. might be effected.

THE OFFICERS FOR 1904.

THE following is the complete list of officers for the new year, as finally adopted at Leamington:

President, W. H. Bunting, St. Catharines; Vice-President, Alexander McNeill, Walkerville; Secretary, G. C. Creelman, Toronto; Editor of Canadian Horticulturist, L. Woolverton, Grimsby. Directors—A. D. Harkness, Irena; R. B. Whyte, Ottawa; Harold Jones, Maitland; W. H. Dempsey, Trenton; Wm. Rickard, Newcastle; Elmer Lick, Oshawa; M. Pettit, Winona; E. Morris, Fonthill; J. S. Scarff, Woodstock; A. E. Sherrington, Walkerton; T. H. Race, Mitchell; J. L. Hillborn, Leamington; G. C. Caston, Craighurst.

Honorary: Prof. H. L. Hutt, O.A.C., Guelph; W. T. Macoun, C.E.F., Ottawa; A. M. Smith, St. Catharines; Thos. Beall, Lindsay.

Representatives on the Board of Control of the Ontario Fruit Stations: Prof. H. L. Hutt, W. T. Macoun and A. M. Smith.

OUR PRESIDENT.

AT the election of officers for 1904 it was with general consent that our worthy president, Mr. W. H. Bunting, of

St. Catharines, was re-elected to serve a second term. His self-denying faithfulness to his duties, both as president and as ex officio member of various important committees, makes his services of the highest value to the fruit growers of Ontario. No one has done more solid work on our Transportation Committee, and to him we are indebted for much of the detail which brought about the appointment of a railway commission, with power to correct much of the injustice done the fruit grower by the railway companies.

Mr. Bunting is a fruit grower of no ordinary importance, having a farm in the township of Grantham, about one mile from St. Catharines, of 140 acres in extent, of which 85 are in fruit. In grapes he has at least 9,000 vines, making nearly 30 acres of vineyard; 5,000 peach trees, a part planted 15 x 18 and a part 18 x 20; 15 acres of apple trees; five acres of strawberries, and quite large plantations of various other fruits. In addition he is extensively engaged in market gardening, vegetable growing and mixed farming.

It is no wonder that such a man should be a leading spirit in his own neighborhood, and should be called upon to assist in all movements for the betterment of fruit growing and general agriculture. He has been instrumental in the organization of the Grantham Fruit Growers' Association and of the St. Catharines Cold Storage and Forwarding Company, and for a number of years held the position of president of both these associations in an acceptable manner. No one could visit a fruit growers' or farmers' meeting at the Grantham public hall without seeing traces of his enterprise on every side; as for example the splendid fruit growers' library of some 3,000 volumes, which has recently become recognized as the Grantham public library. Just now there is an agitation for a special library hall, and no doubt with such generous spirited leaders as Mr. Bunting such a hall will soon be realized.

To Mr. Bunting's energy is also largely owing the existence of the Niagara Peninsula United Fruit Growers' Association, which was organized in 1897, and which has been of signal service in stirring up energetic measures for checking the spread of the San Jose scale, and which is one of the most active and useful agricultural societies in the province.

He was appointed by the Provincial Government, in 1899, along with Dr. James Mills, president of the O. A. C., Guelph, and Mr. John Dearness, vice-principal of the London Normal School, on the San Jose Scale Commission, the work of which resulted in directing attention to the best methods of destroying this insect by treatment of the trees. And in 1901, when a Provincial Superintendent of Horticulture was needed for Ontario's exhibit at the Pan-American, who could have been appointed better qualified to gather excellent exhibits and dispose of them to the best advantage than Mr. Bunting, whose signal service won for us the greatest credit and placed us in the front rank of the fruit producing countries of North America.

Combined with his excellent business ability, and his untiring zeal in the public interest, we find in Mr. Bunting that genuine modesty which often accompanies the truest merit. Often we have solicited him for his photograph for these pages, and for some notes of his life, but as often denied. "I have no desire after publicity," he will reply, "and hate above all things to be advertised before the public." So it happens that the photograph which we present our readers of Mr. Bunting was obtained without his consent, and so it is that these notes are so incomplete.

THE PRESIDENT'S ANNUAL ADDRESS

Officers and Members of the Fruit Growers' Association of Ontario:

Ladies and Gentlemen: In presenting to you a few thoughts in connection with the usual ad

dress by the presiding officer at the annual meeting of the Fruit Growers' Association of Ontario, I desire first of all to express my appreciation of the honor conferred on me last December in my election to this responsible position, and to tender my hearty thanks to the officers and directors, and more especially to our energetic secretary-treasurer, for their hearty co-operation with me in the affairs of the association during the year.

In reviewing the course of events of the year just closing, I am free to confess that it would have been quite easy to have entrusted this office to hands far better qualified and more competent than my own to discharge the duties creditably and in a satisfactory manner. However, as I was not responsible for the error in judgment in the selection made, and am not conscious of any culpable neglect of duty, I can now restore the trust without any vain regrets as to wasted opportunities or a wilful disregard of the interests of the Association.

I am very glad to state to you in a general way what has been brought out more fully and in greater detail by the secretary in his report, that the year has been one of progress and advancement upon lines of work laid out by the executive and directorate of the Association in connection with the educational campaign carried on throughout the various fruit growing districts of the province.

I trust at this annual meeting some action of importance with reference to the general policy of the Association may be taken that will tend to maintain our position in the front rank of the agricultural interests of this magnificent heritage of ours, the Province of Ontario.

In the years that have gone by it has been customary in this address, at times, to indulge in some reminiscences regarding the early struggles and triumphs of the Association. We are approaching the half century mark of our existence as an association, and have passed the quarter century mark in the history of our magazine, and I believe that I am right in stating that there is only one gentleman that can claim to have taken an active part in the organization of this Association away back in the early sixties, who is with us to-night. I refer to our respected friend and enthusiastic horticulturist, Honorary Director A. M. Smith.

While our Association has had its vicissitudes and its struggles, its progress has been ever onward and upward, and it has stood during all these years for what ever was for the greatest good of the fruitgrower, whether his acres be many, or only the modest town lot; and throughout our broad Dominion there is not a tiller of the soil, there is not an artisan or mechanic, there is not a merchant or manufacturer, there is not a single individual, no matter what his position in life, but to a greater or less extent is under obligation to this Association for much that adds to the beauty of his home surroundings and to the comfort and health of his family life. The immense strides that have been made in the beautifying of town and country places, and in the vast increase in the production of the many and varied fruits throughout the country are largely due to the earnest men and women who have been connected with this Association, and who have drawn inspiration from the annual meetings held in the various parts of the province from time to time, and who have gathered knowledge from a perusal of the reports of the addresses delivered at these meetings; from the work of our experiments; and last, but not least, from the columns of the Canadian Horticulturist, so ably conducted by our editor, Mr. Linus Woolverton.

These facts are, however, known to most of you, and it is quite unnecessary that I should enlarge upon them at this time. Permit me, however, to express the hope that we may not rest on the laurels and traditions of the past, but that, enthused by what has been accomplished by those who have guided our Association so wisely and so well, we may be able to take higher vantage ground in the future and make our influence felt not only in legislative halls but also in the councils of the great transportation companies, and, with the powerful consolidations of capital that are absorbing so many of the avenues for the disposition of the products of our orchards and vineyards, in such a way as will secure even-handed justice to each and every member of this Association in his business relations with the public.

It will not be out of place here, on behalf of the Association, to tender to the Minister of Agriculture our appreciation of the kindly interest he and the officials of his department have continually taken in every movement that has had for its object the advancement of horticulture in this province, and the substantial manner in which that interest has been manifested from year to year as circumstances have warranted. We believe that we have in the Hon. Mr. Dryden, a gentleman who is thoroughly in sympathy with the agriculture of the province and is eminently well qualified for the position which he so ably fills.

Gov. Odell, of the State of New York, observed in his address at Niagara Falls before the Farmers' National Congress a few weeks ago, that government financial assistance to the agricultural interests of the country was not paternalism, but tended to develop and encourage good citizenship in the broadest sense of the term and was a proper and legitimate use of the public funds. Our Provincial Department of Agriculture has fully realized this principle in the past, and it remains for us to provide proper channels for development and progress and to lay our plans before the department in a businesslike way, when I have no doubt our requests for further financial aid will receive careful consideration.

During the past year a new horticultural organization has been formed called the Canadian League for Civic Improvement. While this is a separate and distinct organization, arrangements have been effected whereby our association is represented on its board of management; the Canadian Horticulturist has been selected as the official organ of the League, and a special

department has been set aside for its use. We will be glad to welcome their hon. field secretary, Mr. G. R. Patullo, to this annual meeting, and will no doubt listen with a great deal of pleasure to his address on the aim and work of the league.

The time has come in the history of the province when a great deal more attention is being paid to the improvement and beautifying of our home surroundings and the public places in our towns and cities than heretofore, and in this good work every member of our association is called upon to take a part.

We have spent years in learning how to grow good fruit and to produce plenty of it, in securing and disseminating the best and most profitable varieties of all kinds of fruit, and that we have succeeded in so doing goes without saying. Notwithstanding the many and varied obstacles that have stood in the way, and the many unforeseen discouragements that have encompassed the path of the fruit grower, the past season has again conclusively proven that we are able to produce, under ordinary circumstances, an abundance of fruit for all the demands of our broad Dominion

The question of production is not now one that confronts us, but prompt and efficient distribution to the various parts of the Dominion where needed, at a reasonable cost and in a careful manner. To this problem our transportation committee in the past two or three years has given considerable attention and thought. The result of their efforts has been of considerable benefit to the large commercial grower, but not so much to the smaller producer. It is hoped however that, with the appointment of a railway commission, a step that this association has strongly urged for several years and through its transportation committee forcibly brought to the attention of the Government last winter, that such representations may be made to the commission as will lead to a very great improvement in the carriage of fruit, both as to rates charged and service rendered, and as will result in Ontario fruits going in ever increasing quantities to the important markets which are opening up in Manitoba and the Northwest, as well as to the more northerly parts of our own province, to say nothing of the large and important export trade over the sea.

There is perhaps no question of such interest to our readers to-day as the great problem of distribution. How to organize and co-operate to accomplish this object is a live and burning question in the minds of hundreds of earnest practical growers at the present time. When, during the past season, thousands of baskets of beautiful fruit have been left to hang and rot on the trees from lack of proper facilities to place them in the hands of those who would gladly have purchased them at a fair price, and when thousands of barrels of apples have also been wasted or disposed of at a fraction of their real value, for lack of suitable packages, while at the same time a Macedonian cry was heard from the Mother Country for all the fruit we could possibly send her, it is certainly time for this Association to be up and doing and to endeavor in some way to elaborate a plan whereby those unfortunate conditions may not continually occur. I am glad to say that the germs of co-operation have gained a foothold, and a good beginning has been made in some sections. We have also with us to-night a gentleman from our cousins to the south who has had considerable experience in co-operative organization, and who will no doubt be able to give us much valuable information in this respect.

FIG. 2716. G. C. CREELMAN, B S. A., TORONTO ONT., SECRETARY OF THE ONTARIO FRUIT GROWERS' ASSOCIATION.

A word or two with reference to general conditions during the past year. We have cause to congratulate ourselves that we have experienced a year, when the promise of the spring has been abundantly fulfilled in the harvest of the summer months. All kinds of fruit have been produced in abundance and of good quality, and even our standard fruit, the apple, which gave us such a production in 1902, has surprised us with a generous supply again this year. While prices have in some cases been very low, and cost of handling and transporting correspondingly high, still on the whole the average grower has cause to express his gratitude to Him who gives the early and latter rain and who brings to perfection the beautiful products of our orchards and gardens.

It has also been fully demonstrated again this year that it is quite possible to cope, in a scientific way, with the insects and fungus pests that cause the fruit grower so much annoyance and loss. Our members will do well to inform themselves thoroughly on the best appliances and the most up-to-date methods of dealing with these troubles, and having gained the information attend diligently to putting it into practice, a work for which they will be well repaid.

I thank you, ladies and gentlemen, for the hearing you have given me, and I trust that our meeting here in Leamington may not be without its value to the residents of the town and surrounding country, and also may result in great good to fruit growers generally throughout the province.

OUR SECRETARY.

A MAN, to be successful in public life, must be tactful, obliging, good-natured, and energetic. These attributes are possessed in a large degree by Mr. G. C. Creelman, Secretary of the Ontario Fruit Growers' Association.

Mr.Creelman was born in the town of Collingwood, Ontario, in May 9th, 1869. His parents were both Nova Scotiars, his mother being descended from Scotch ancestry, while his father's forebears came from the north of Ireland.

When he was nine years of age his parents moved to a fruit farm in Collingwood Township, in the county of Grey, and there Mr. Creelman spent his youth. He attended the country school until passing the entrance to the high school. For two years he attended the Collingwood Collegiate Institute, and from there went to the Ontario Agricultural College, where he took the degree of B. S. A., in 1888, in the first class that graduated from that institution.

Immediately after graduation Mr. Creelman was appointed Assistant Professor of Biology in the State Agricultural and Mechanical College, of Mississippi, U. S. A. Three years later he was promoted to a full professorship, and he remained in that institution until he returned to Canada to take up his present work.

During the summer vacations in his college work in Mississippi, Mr. Creelman took special courses in botany and horticulture at the Michigan Agricultural College, the State University of Minnesota, and Cornell University, New York. He was granted the degree of Master of Science by the Mississippi Agricultural and Mechanical College.

In 1892 Mr. Creelman married Miss Ada, the eldest daughter of Dr. James Mills, President of the Ontario Agricultural College.

Since the appointment of Mr. Creelman to the secretaryship of the Ontario Fruit Growers' Association he has put new life into the work. Orchard meetings have been held throughout the Province. Speakers have been sent out to address farmers in the orchards on the best methods of pruning, grafting, budding and spraying fruit trees; and the demand for these meetings has increased to such an extent that applications are coming in from all parts of the province for an extension and repetition of the work.

By wise planning Mr. Creelman is bringing the work of the Fruit Experiment Stations of the Province into close touch with the farmers. Farmers' Institute excursions to these stations have been arranged during the last two seasons. and the farmers in the counties in which the fruit stations are located are thereby enabled to inspect personally the work that is being done.

Mr. Creelman also has charge of the business end of the Canadian Horticulturist, and with the assistance of the editor, Mr. Linus Woolverton, is making this journal an up-to-date horticultural publication. He likewise has charge of the lecture course of the Horticultural Societies, and each year better work is being done and better results obtained by these societies under his guidance.

In addition to his horticultural work Mr. Creelman carries a very considerable burden as Superintendent of the Farmers' Institutes for the Province of Ontario. an office which

takes the full time of a man in most of the States across the line. For the year ending June 30th, 1903, the paid-up membership of this organization in Ontario was 23,754. Eight hundred and thirty-seven meetings were held during the year, and 3,337 addresses were delivered before audiences aggregating 126,459 persons. The arranging of the details of all this work involves a large amount of patience and painstaking work.

Mr. Creelman has associated with him in the Farmers' Institute work fifty practical farmers, who attend the meetings as arranged in circuits by the superintendent.

Three years ago Mr. Creelman decided to do what he could to encourage the formation of Women's Institutes, and as a result of his decision there are now in the Province of Ontario fifty-three Women's Institutes, with a paid-up membership of over 6,000. The usefulness of these organizations is unquestioned, and their rapid development indicates the great need of better methods and better appliances in farm homes.

The agricultural societies have also had the benefit of Mr. Creelman's oversight during the past two years, and the most noticeable development under that head has been the sending of expert judges to place the awards in the different classes of live stock, giving reasons, at the fall fairs. This year 152 agricultural societies availed themselves of the offer of the Ontario Department of Agriculture, and through Mr. Creelman they were supplied with competent judges in the different classes of live stock. The good effect of this work has already been felt, and its importance cannot be questioned when we remember that 80 per cent. of the farm produce of Ontario is fed to live stock.

In a word we may say that Mr. Creelman is in close touch with all phases of Ontario agriculture, and probably no other man in the country has a more intimate knowledge of the needs of the farming community in every county and township of the province.

THE SECRETARY'S REPORT.

IN Mr. G. C. Creelman the Association has an excellent executive officer, whose command of details and excellent judgment in the conduct of affairs has gained for him the confidence of the Board of Directors to such an extent that he was unanimously re-elected as secretary for 1904 at an advance in salary. His report of work done and work in prospect was most exhaustive, and, if carried out, means much for the development of the commercial side of the fruit industry of the province. The following is a brief summary :

1. Orchard Meetings.

Meetings of farmers in their orchards having proven most sucbessful in 1902, the work was continued during this year. Messrs. McNeill, Carey and Lick of the Dominion Fruit Department helped us very materially in this work. The meetings were held mostly during the month of March, when practical demonstrations were given in pruning and grafting, which led to a general discussion on orchard management and matters generally pertaining to the fruit business. In all, 49 such meetings were held, and the amouut of good done cannot be estimated.

2. Fruit Experiment Stations.

Last year a copy of the report of this most important branch of our work was sent to 1047 members of our Local Fruit Growers' Associations. Besides this, it was arranged with the Farmers' Institutes for farmers in the vicinity of these stations to visit them at certain periods and receive instructions from the experimenters, especially in reference to matters pertaining to fruit culture, and in regard to the best varieties to grow in that particular district.

Of course it is impossible to determine the good this educational work is doing. Farmers are reticent about their business. It is an undisputed fact that at agricultural dinners held in our towns and villages most of the speech making is done by lawyers, doctors and other professional men present. The same is true in meetings of Farmers' Institutes. Very often our speakers are almost discouraged, and say on returning from an institute campaign that they do not believe they accomplished any good in certain districts. Later on, however, come letters from farmers who were present at our meetings, asking for fuller information in reference to certain things that were discussed at these meetings. We realize therefore, that many farmers get information at our fruit stations, in our orchard meetings, through our reports, and at our Annual Meetings which they never acknowledge. But what matters

it so long as they put into practice the better methods?

3. Fruit at Fall Fairs.

Arrangements were made whereby Mr. T. H. Race of Mitchell one of our Directors, addressed a meeting of the Canadian Association of Fairs and Exhibitions. Mr. Race implored the Fair management to take away the barriers from in front of the exhibits, and allow the people to see and examine the fruit. He also requested that some one be present at the Fruit Department during the Fair, to answer questions about the fruit exhibited, and the adaptability of certain varieties to that particular district etc. This has had a good effect, as I have noticed already that many of the prize lists have improved as a result of these suggestions and of the work of your select committee who last year prepared a list of fiuits for the different Fair Boards of Ontario.

4. Fruit Packages.

We have received many inquiries during the year in regard to the best kind of package to use for the shipment of apples and pears. Mr. McKinnon, chief of the Fruit Division, Ottawa, also received an enormous amount of correspondence on this important subject. We have boxes ol all sizes, from ¾ of a bushel to 2½ bushels in use in Ontario. I trust at this meeting this matter will be thoroughly discussed, and some conclusion come to in regard to a uniform package for the shipment of apples, throughout the entire country.

5. Our Annual Report.

This was late in coming out this year, but I think you will agree with me that the subject matter contained there-in was most satisfactory. Bound copies containing not only the report of this Association, but also of Fruit Experiment Stations, Fruits of Ontario, and the proceedings of the Ontario Entomological Society were sent to each member of the Fruit Growers' Associations.

6. Horticultural Societies.

The work of this Society I consider to be of the greatest importance to the Province. This Association has been severely criticised by some of the Societies for not giving them more assistance, and in some cases the complaint may have been justified, but on the whole I am pleased to state that as far as possible, this Association and the different Horticultural Societies are working together for the up-building of our fruit and flower interests. Lecturers were sent out to address meetings in thirty-three different towns.

7. Canadian Horticulturist

This publication has probably done more than any one factor to improve the orchards and home grounds of our people. It has also been steadily improving in subject matter and appearance. But there is a growing demand for a larger periodical. Whether this should be by the addition of more pages, or by a change of form, it is for you to discuss. Your Executive believe that the work of the Experiment Slations should be more thoroughly written up, and that there should be a department added on the work of co-operative buying and selling. We believe that the work of Forestry, which is embraced in our constitution, should be given a special department in our Journal, and we suggest that the Dominion and Ontario Department of Forestry be asked to co-operate with us for the further development of such a department.

8. Toronto Industrial.

While this show is held too early for the best display of our fall and winter varieties, yet a large number of people in attendance from all parts of Ontario impels the fruit men to make the best of the occasion, and do what they can toward showing the improvements of the fruit industry. At present, however, the building devoted to fruit is entirely inadequate to our needs, and we are pleased to say that steps are now being taken to secure a better building before next year's Exhibition. This Association has been asked by the Exhibition Board to appoint a committee to meet with their board for consultation in regard to plans and specifications for such an Exhibition building.

CO-OPERATION AMONG FRUIT GROWERS

CO-OPERATIVE CLUBS.

THE time has come when fruit growers must combine if they would achieve the best success. At every shipping point a half dozen or more growers should form a co-operative club, with a competent business manager. The work would cover (1) buying or manufacturing packages, (2) power spraying of the orchards of the members, (3) a central cold storage and packing house, where each member could either pack under the superintendence of the manager, or leave his fruit to be packed and shipped by hired labor; (4) the study of market conditions and the sale of the fruit just where it would bring the most money, f. o. b., if possible.

FIG. 2717. MR. ALEX. MCNEILL.

Vice-President of the Ontario Fruit Growers' Association; Chief Fruit Inspector for the Dominion, an excellent public speaker, and always listened to with close interest, whether at the Agricultural Fair, the Farmers' Institute, the Horticultural Society or the Ontario Fruit Growers' Association. At our Leamington Meeting he gave an address on "Fruit Packages," which lead up to the adoption of a uniform apple and pear box for the Dominion.

CO-OPERATIVE PACKING AND SELLING.

AS an example of what is already being done in Ontario in this direction, we give the report by A. E. Sherrington, of Walkerton, of the success of the co-operative work done during the past two years by the Lake Huron Fruit Growers' Association. He says:

This association was organized in the month of March, 1902, with a membership of twenty-four under the auspices of the Fruit Growers' Association and by direction of the secretary, Mr. G. C. Creelman. The rules as laid down by the association as a guide for local associations were adopted and have been carried out as closely as it was possible to do so. The association met monthly and at these meetings the different subjects regarding fruit growing and co-operative work in connection with it were discussed.

A new set of rules and by-laws are now being prepared and incorporation applied for. I should like to mention the one governing packing. Each member must pack and grade his own fruit, placing his name on each package with either stencil or rubber stamp, and stating the variety and grade of fruit. In this way every member becomes responsible for his pack. In 1902 the association made its first trial in co-operative work by putting up two cars of Duchess apples, made up of 1,000 boxes and 100 barrels. These were sold f. o. b., but forwarded to Manchester, England, and arrived in good condition. In addition to these, three cars of winter apples were packed and sold. This year the association has prospered beyond all expectations. We have now between fifty and sixty members and all go in for co-operation in the shipping of apples. Up to the present time the association has shipped fourteen carloads.

Advantages of Co-Operation.

(1) We believe that the grower is the proper party to grade and pack his own fruit. By so doing he receives better prices, and better prices mean more money, and more money means more interest being taken in the care of the orchard and fruit.

(2) By co-operation apples are not left lying on the ground waiting on the packers to come and scramble over the piles for a few of the best specimens, and wasting the rest, but are packed as gathered from the trees, thereby saving a larger percentage of the fruit.

(3) Another advantage in co-operation is in the handling of early apples, as all the members can commence picking and packing the same day. In this way only two or three days will be required to make up a car, and the fruit will be gotten away in a fresher and better condition than by the other way of selling to buyers.

(4) By co-operation, better shipping facilities and lower rates may be obtained.

As to the possibilities of co-operation, it is impossible to tell what the outcome will be, but it seems bound to grow and become a power with the Lake Huron Fruit Growers' Association. The next move will be to build a storehouse where packages may be stored ready for use, and where they may be returned when filled, and kept until the cars are made up. I have no doubt that in a short time other farm products will be added to the list of co-operative shipments, such as butter, eggs and poultry. These products can all be handled by co-operation.

THE address by W. H. Owen, of Catawba Island, Ohio, who is manager of a large fruit packing house for a syndicate of some thirty-four fruit growers in that state, was so opportune and suggestive that we give it in full in this connection, as follows:

CO-OPERATIVE FRUIT PACKING AND MARKETING.

WHEN the stockholders of an industry are meeting with successful results in the disposal of their products, little thought or attention is given to competitors along the same line, until competition, over-production or under-consumption depreciates the value of their product to little more than the actual cost price of same; they then give their attention to methods that will better their conditions and devise ways and means by which hey may reduce the cost price and competition.

How is this change for the betterment of their conditions usually brought about? Invariably through the same channel, by organization, by trusts and by co-operative associations. What is true of the manufacturer in this direction is also true with the farmer and horticulturist in the disposal of their products.

The Californians were probably the first to co-operate in marketing their vast product of fruit, which was really the result of necessity, for their industry rapidly expanded, until their local markets could not consume the enormous production, and they were obliged to seek other and more distant markets. This they found could not be accomplished individually, but through powerful corporations they have succeeded in gaining low rates and improved methods in handling and shipping. How well they have succeeded we are all familiar, and now we find their fruits in nearly every market of the country—even competing with our own products in our local markets. Organizations, judiciously managed, have placed the Californians in the lead, in the way of distributing and marketing their fruits. Through their efforts is due the credit of perfecting the present refrigerator service, by which they are enabled to ship their more perishable fruits, even to the great markets on the Atlantic seaboard.

Missouri is fast accepting the profitable teachings and examples of the Californians, and her vast fruit products are now largely handled through companies and shipping associations.

Michigan, having the greatest market in the world at her very doors, had no occasion to look elsewhere than Chicago or Milwaukee for her markets. However, the Wolverines have discovered in recent years that the enormous contributions of fruit from Missouri, Southern Illinois and Indiana to these markets has in a measure forced them to look elsewhere for a portion of their markets. They now ship hundreds of carloads of peaches annually to eastern markets and the Western and Northwestern States This was not brought about, however, until co-operation among the growers in different localities was instituted.

The extreme eastern peach growing States—New Jersey, Maryland, Delaware, Pennsylvania and New York, are so favorably located in reference to so many large consuming markets that organization to them has not been so paramount to their success as it is to the Middle and Western States.

Handling Peaches.

The further from market the greater need of getting together, as the risk increases with the distance.

I will confine my discussion principally to the advantages in organization for handling one of the most perishable of the tree fruits, viz., peaches.

Peach shipping associations have been operated with more or less success throughout the peach belt of Michigan and Ohio, but in shipping in carload lots, although complying with rigid rules laid down by the association, there was an objectionable feature to the trade, and that was the lack of uniformity of grades and packing. To be more explicit on this point, you have all probably visited some of the various markets during the peach season, and have noticed the very great difference prevailing in grades of different packs. That is, some packers, B or XX grades were just as good as some other packers, A or XXX grade. Therefore, the grade marks of the general run of consigned fruit, where not put up by one set of hands, as a rule, are not of very great assistance to the purchaser, and he still is obliged to resort to his own judgment and eyesight in his selections. Now for a shipper to make up a carload of this indiscriminate packing of fruit, where it is packed by many growers, each contributor having a different way and idea of how peaches should be packed and kind of packages used—conceding that they are all honestly packed—how is the shipper going to bill that indiscriminate lot of fruit, and can he warrant the packing? This serious objection of lack of uniformity confronted the Michigan fruit growers and has resulted in the adoption of the Central Packing-house system by their principal associations. This system was originated and established in the peach industry at Catawba Island, Ohio, in 1891, and it has resulted in untold savings and benefits to the peach grower wherever the system has been adopted.

A Central Packing House.

The mere shipping association, where each grower prepares his own fruit and delivers it to the association, by which it is shipped with other packs and packages, either in carload lots or local shipments, is a step in advance over the old or individual method of shipment; but the Central Packing-house System is a much greater step in advance over the mere shipping association.

The old adage of "In union there is strength," is most aptly exemplified through the many advantages that may be attained through an organization of fruit growers, organized for the purpose of bettering their conditions in shipping and marketing their fruit The many discouraging problems that confront the grower in the satisfactory marketing of his product, I believe are satisfactorily solved through the adoption of the Central Packing-house System. At

least, such has been my observation through the management of such a company for the past twelve years.

Advantages.

Let us for a moment review further a few of the advantages to be attained through such an organization. First, the grower can place his undivided attention to the proper picking of his fruit, which is a very important factor; whereas, it is known that if peaches are picked green or immature, or over-ripe, and delivered to the packing house in such condition, no amount of work that may be put upon it can make good prime fruit of it. The great advantage of the Central packing-house is the superior advantages and inducements it offers to purchasers of fruit in securing a uniform grade and pack. It affords a place where the buyer can select just the grade and kind of fruit that best suits his trade. When the fact is known to the trade that they can purcure their supply direct and in any quantity desired, and every package guaranteed to contain freshly-picked and uniformly-packed fruit, even the commission men will then come to your doors and buy. Buyers are looking for carloads of uniform fruit and not for carloads that are not uniform.

This system entirely eliminates the practice of deceptive packing and gives buyers confidence that they are getting honestly packed fruit. Even were you obliged to consign largely, it will bring better prices on the market, and the commission firms are bound to take better care of your interests than of the individual shippers, because there is more at stake, and the merchant realizes that if he makes a mistake or misleads you in his advices, he will probably not have the opportunity of handling your account again. The labor saved at both ends, by dealing with one man or corporation instead of ten or fifty, becomes apparent, and the commission man can afford to handle a corporation account on a less percentage, and it really pays him better because of work and time saved. And again, buyers after becoming acquainted with your grades, pack and manner of doing business, can order their supply of fruit intelligently and without the necessity of retaining a representative at the shipping point.

Another great and beneficial effect of such an organization is that, through its influence in broadening the field of distribution, it does to that extent disprove the "over-production" policy.

We have found that in our own dealings with transportation companies, basket manufacturers, and even the commission man, they lend a more willing ear and correct errors and abuses with greater promptitude when presented by the authorized representative of a company, than they will for any individual or small grower presenting a case possessing equally as much merit.

Transportation companies consider a well-organized fruit company, working upon sound business principles, in the same light as any other well established business which contributes to their receipts.

We as a company have found them disposed to grant favors and investigate complaints fairly, while the lone individual, under the old plan of "every fellow for himself," would perhaps have remained unnoticed.

Lastly, a recommendation that is appreciated by those who have had the experience in the Central Packing-house system, is the fact that is relieves the home and good housewife of that burden which is attendant through the care of the extra help that will now be dispensed with.

Expenses.

Now as to the expense of organization under this system. Some may raise the objection that it will cost too much to establish a plant, but you will find after careful investigation it will be far cheaper for each to contribute toward a general plant than for each individual to supply himself with a packing house, a grader, and other necessary equipments. In the establishment of a central packing-house, make sure of one point, and that is, provide a building with ample room for receiving, grading and expeditious handling of the fruit. If the requisite amount of floor space is not provided, it will necessitate vexatious waiting of the members in taking their turn at unloading their fruit.

Do not think that a room with no more space than would ordinarily be used by three or four of the larger growers of the company and equipped with insufficient number of graders, will properly take care of the fruit of twenty or thirty orchards, for it will not, and such conditions will only result in loss, through failure in being able to get the fruit through promptly.

As for laying down defined rules for organizing, that is a matter which each locality will best work out for itself, as local requirements and conditions vary.

Now what is wrong with the present system, or, more properly, lack of system, outside of the already established organizations? Can you name any industry wherein so many hundred thousands of dollars are invested that is conducted so carelessly as the fruit business of this great fruit producing country? It is a great wonder to me that the average peach grower should even get the price of his packages in return for his labor. To make it plain, the average orchardist can not afford himself the facilities for keeping in touch with the trade and keep posted daily on the changing conditions of the various markets. He is too busy harvesting his crop to study out the best plans and inform himself of the best places to ship in which he will meet the least competition. And right here I wish to emphasize the word "competition," for are we not each and every one of us placing our fruit in direct competition with each other? Again, the orchardist individually, is placed to a disadvantage through his inability to properly distribute his fruit. I say inability, because he has no control over other shippers, and has no means of knowing but that 90 per cent. of the other shippers throughout his vicinity are shipping to the very market in which he expects to avoid a glut.

There is surely a way out of all this dilemma.

and a practical and time-tried way, that I am confident if universally adopted, would place the product of the orchard on a more profitable basis than is now being realized. As long as the present careless methods are continued we may expect to be the victims of our own failure to protect oud interests by the positive means within our reach.

Handsome Dividends.

If we will carefully investigate the hundreds of unions and co-operative plans that are now in existence in nearly every branch of business, you will find they are all declaring handsome dividends to their stockholders, while prior to their consolidation in many cases they were actually running at a loss.

What has been true in other branches of business through the result of co-operation to avoid competition and reduce the cost of placing their products on the markets can be made true of the fruit industry in the different fruit growing sections of the country. It is not a visionary and undemonstrated theory. It is the furtherance of a co-operative plan that is now in actual, practical and successful operation in several of the States, and the more universal this system may become adopted, in like proportion, better results will follow.

If some of the fruit organizations have not proven entirely satisfactory to their members, due to mismanagement, that should not prejuduce or deter those interested from investigation of the plan, for there are fruit companies that are thoroughly successful and making money for their members. The co-operative fruit company will succeed if organized and managed upon a business basis, just the same as any other business enterprise requiring co-operation. It is surely the best means in which to conserve the interests of the producer, and we know that the grower's interests can best be served through facilities which they may own and control.

After thorough local organization has been effected throughout the various fruit producing sections, let us for a moment see what further advantages might be attained in the way of uniting all these companies in each county or section into one powerful corporation.

County consolidation could be successfully accomplished only through the Central Packinghouse System, and then not until local organizations had been established and perfected at the shipping points throughout the county. After the establishment of companies at the different shipping points, then the consolidation of all into one powerful union under one management would place the fruit growers in possession of the key to the situation of the avoidance of fruit gluts, competition and distribution. To accomplish such an end of thorough organization it would mean for each locality to enter the work with a spirit of determination.

We must be prepared to join our neighbors in correcting the existing wrongs and surmounting the obstacles and objections that may confront us.

Organization.

We have the power, and we can do it if we see fit. As one of our western horticulturists very aptly stated: "If I were compelled to use but one word in designating the remedy for the many evils and disadvantages with which we have to contend, it would be "organization."

Organization leads to co-operation, and organized co-operative effort is the power and influence that is shaping and moulding the financial and commercial interests of the present time. Look where will at any business worthy of the name, and we find it compactly united in some form of union that seeks to make the interests of one the care of all, and the prosperity of all, the prime object of each individual.

MR. OWEN'S SYSTEM has not been applied to apple packing and selling, but he thinks there is no reason why it should not be so applied. His grades, AA, A, B, C, correspond with our Fancy XXX, XXX, XX and X, the latter being culls; and every man's fruit is graded separately and given a receipt for just what he puts in of each grade. "We have," said Mr. Owen, "a demand for our culls as well as for our higher grades, and sell nearly all our stock, seldom making a consignment."

The current expenses are cut down to a minimum on every hand by Mr. Owen's system of co-operative packing and shipping; baskets are purchased wholesale; labor is economised; goods shipped mostly by freight in car lots, and sales made f. o. b. to large jobbers. They could pack and ship from 3,000 to 5,000 bushels of peaches per day, and the total cost to each member was about 18 cents per bushel.

OUR ASSOCIATION TO ENCOURAGE LOCAL UNIONS.

AT this point in the proceedings of the meeting the committee on resolutions reported as follows:

That in the opinion of this Association the future development and continued prosperity of the fruit growers of Ontario depends on the formation, in every district, where such does not now exist, of a growers' co-operative organization for the pur-

pose of handling fruit and buying supplies in a co-operative way, and for the further purpose of bringing the united influence of all to bear with a view of securing better transportation facilities in the interest of all.

That, for the purpose of developing such organizations, a committee be formed, charged with the duty, acting in unison with the local directors in promoting the work of the organization during the coming winter, and that the president be charged with the special duty of attending meetings called by the local organizations for the purpose of assisting and completing the work of organizing.

That the Organization Committee shall consist of G. W. Cady, Leamington, for the western district; Robt. Thompson, St. Catharines, for the Niagara district; A. W. Peart, for the Burlington district; A. E. Sherrington, for the northern district; and Wm. Rickard, M.P.P., for the eastern district.

And further, that the Executive be instructed to provide funds to meet the necessary expenses of those named while carrying on the work assigned them.

At a subsequent meeting of this committee the secretary, Mr. G. C. Creelman, was instructed to correspond with the various local fruit growers organizations offering aid in the formation of co-operative associations or unions, and inviting further conference upon questions of detail.

FRUIT DEALERS WOULD BUY FROM A UNION.

"THE views expressed by Mr. Owen," said H. W. Dawson, of Toronto, "are the views I have entertained for a long time. I have always contended that co-operation, with central packing houses, is the proper system of handling our fruit trade. By this means, even when unusual production occurs, and a glut is inevitable, that glut can be confined to one particular locality and general market demoralization avoided. The best exemplification of the working out of the co-operative system is seen in the handling of the Texas tomato crop. That is handled by one man stationed at St. Louis, and the system is so thorough that congestion is absolutely avoided. The grading is also so perfect that you can order a car of Texas tomatoes by grade and feel perfectly secured you will get just what you order. Despite our large production of peaches in Canada, you can not do that with peaches in this country. I am a commission merchant, but I would sooner be an outright buyer if I could deal with organizations formed on the plan outlined by Mr. Owen."

ENCOURAGEMENT TO THE CANNING INDUSTRY

MUCH has already been written in these pages about the importance to fruit growers of encouraging the canning and evaporating of our fruits, in order that we may thus dispose of the No. 2 grades at home. If this were done there is no doubt that far higher prices could be obtained for our No. 1 goods. The high tariff, however, in refined sugar imported from abroad has been a serious obstacle in the way of the development of this industry in Canada, making it difficult to compete with foreign canners, notwithstanding the abundance of cheap fruit in our province.

In view of this evident hindrance to the development of fruit growing in Ontario, the following resolution was unanimously passed by the Association:

That, whereas, during the season just passed, thousands upon thousands of baskets of tender fruits rotted upon the ground, while in Great Britain and even in our own country, an apple outlet, at profitable prices, could have been obtained for the same had sufficient means existed for the bringing together more closely, producers and consumers:

That, whereas, to provide for this bringing together, it is necessary that the bulk of these tender fruits be reduced to a preserved form as near the point of production as possible:

That, whereas, one of the main difficulties in the way of securing complete development of this canning and preserving industry lies in the

cost of the raw materials, other than fruit, the chief of these other raw materials being sugar and packages for holding the preserved article :

Therefore, be it resolved, that this association respectively, but most strongly, urges the Dominion Government to extend to the canning industry of this country the same system of aid already extended to other industries, by enabling them to buy their raw materials at the lowest possible cost, and that to this end the duty on sugar used in canning, and on packages used for holding canned fruit, be remitted :

And, further, that the Dominion Government be petitioned to secure the enactments of legislation compelling the labelling of all canned preserves in such a way as to show what the canned goods actually consist of as demonstrated by official analysis; and, further, that such goods be distinctly labelled, "Made in Canada."

FRUIT TRANSPORTATION.

THE carrying of their fruits has been for years most unsatisfactory to fruit growers. The present express and freight rates were made up when fruit was a luxury in Ontario, and very high priced in our markets. In those days when peaches and pears often brought the grower $1.00 a basket, he could well afford fifteen cents express charges; but now that these fruits often sell at 25 and 30 cents a basket, he cannot afford it. Besides, in those days there was not one basket carried by the companies to one hundred these days, so that they are unfair in persisting in their high rates. The question was brought up by G. C. Caston, chairman of the committee, and during the discussion many well grounded complaints were plainly set forth.

COMPLAINTS OF FRUIT SHIPPERS.

"No such a heavy carrying charge as fruit, nary commodity which is subjected to HERE is," said Mr. Dawson, "no ordi- and there is no commodity in which the volume of traffic offered is increasing so rapidly. We must have a rate which will bear some comparison to rates imposed on other commodities, and to this end we must not only present our demand for relief, but we must, like the Millers' Association, keep on pressing until we secure relief."

"The foundation grievance," said President Bunting, " is that the railway people have placed fruit in the category of luxuries, and have listed it as an article which should bear the maximum rate. We must convince them that fruit is not the luxury of the rich, but the necessity of all. It is true that fruit requires prompt handling by the railway people, but there is the compensating advantage which comes from equally prompt return of rolling stock. Fruit growers themselves must also assist in improving the present conditions by joining together and shipping car lots at one time, instead of shipping a number of small lots as individuals."

"There is," said Mr. McNeill, "no lack of definiteness so far as our grievances are concerned. Hundreds might be mentioned. Let a few suffice. Apples are in class 5, and bear the high rate imposed on goods shipped under that class. They should be reduced to class 8, and carried at the lower rate imposed on all goods transported under such class. We also demand a change in regard to the rate on cars consisting of mixed lots of fruits. Why, for instance, when we put a few baskets of peaches in a car of cheap pears, or still cheaper tomatoes, should the rate on the whole car be jumped up from the comparatively low rate imposed on pears and tomatoes to the very high rate imposed on peaches ? Why, again, should the charge for a short haul be so utterly out of harmony with the charge for a long haul ? Why should cull apples, shipped from Creemore to Collingwood, a distance of ten miles, be charged 15 cents per cwt., while sugar beets can be shipped a much greater distance for 40 cents per ton? We should, furthermore, have a better refrigerator car service, improved accommodation at freight stations, and our express rates should be cut in half."

"I have," said E. D. Smith, M. P., "been charged 70 cents per barrel for ten barrels of apples shipped from Port Perry to Almonte, while the rate on car lots from any point in Ontario to Manchester in England is only 39 cents. Delays in shipments constitute an even more serious grievance than the overcharge in rates. I have had shipments twenty-nine days on the way from Winona to Collingwood, thirty days on the way from Owen Sound to Winona, from seven to eight days to two weeks in covering a distance of 100 miles, and to have a shipment two weeks on the way to Nova Scotia is a common experience. Compare this with the despatch which characterizes the handling of freight in England. There is a daily freight train to Manchester which, during a whole year, has not varied thirty minutes in time of arrival at destination. Compare even with our own country on roads which have not an express department as part of their service, and where there is no temptation to delay the freight service where charges are comparatively low in order to divert traffic to the express department, where charges are most unreasonably high. I can send goods to Petrolea by the M. C. R., on which there is no express service, and where efforts are made to provide a satisfactory freight service, and ensure delivery next morning of goods shipped in the afternoon."

THE ONLY HOPE OF REMEDY.

AS Mr. Caston stated in his report, strong representations have been made by the committee to the officials of the railways asking for a redress of the grievances complained of, but so far with little or no success. Our only hope seems to be in the appointment of the promised Railway Commission, whose powers will enable it to rectify such abuses; and to this commission we will appeal as soon as it is appointed. Our committee on this work for 1904 consists of R. J. Graham, Belleville; H. W. Dawson, Toronto; D. D. Wilson, Seaforth; W. L. Smith, Toronto; D. J. McKinnon, Toronto, and J. M. Shuttleworth, Brantford.

A STANDARD CANADIAN APPLE BOX.

THE great scarcity of apple barrels during this season has emphasized the importance of the provinces agreeing upon a standard box for use in shipping pples and pears. Mr. Alex. McNeill, chief fruit inspector, Ottawa, gave a chart showing the various sizes of apple boxes in use in various apple producing countries, and showed that the one already most in favor had an inside measurement of 10 x 11 x 20, or 2,200 cubic inches. Mr. Wilson, of London, who has given much time to uniformity in packing boxes for all fruits, proposed a box measuring inside 10⅛ x 10⅝ x 20⅝, or 2,218 cubic inches, an exact bushel. He advocated this because it could also be used as a crate for twenty-four standard strawberry baskets, or eight standard grape baskets. By adopting it there would be a possibility of putting up all kinds of fruits grown in Ontario in a uniform exterior case. The committee favored the adoption of the 10 x 11x20 without the fractions, as the slight difference in size would be no hindrance to the use of the Wilson case, should growers wish it for making shipments of all fruits in a uniform outside package. A box 9 x 12 x 18, which was about ¼ of a barrel, was advocated by some, because women packers could more easily handle it; but on the other hand it was urged that in exporting apples to the United States the duty was 25 cents a box supposed to be a bushel, and if it held less the duty would still be the same. For cold storage the charges are on the same basis. The resolution presented by the committee was therefore finally adopted, reading as follows :

"Your committee would recommend that the Canadian apple box be one of which the cubic contents is about one-third of the Canadian commercial apple barrel, with inside dimensions as follows, 10 inches deep x 11 inches wide x 20 inches long; and that the Canadian pear box be one-half the capacity and half the depth of the apple box; and that the Secretary of this Association communicate with the secretaries of the Fruit Growers' Associations of other provinces in reference to uniformity in this matter."

NEW OR VALUABLE FRUITS.

MORE WORK FOR THE FRUIT STATIONS.

"I THINK," said Mr. E. D. Smith, of Winona, "that the stations would do us a great favor if they could discover new fruits of real value and introduce them. The new varieties should be carefully tested, and when one is found better than an existing variety, and of the same season, they should introduce it to our notice. Just now, for example, in peaches we need at least two good shipping peaches. We have one in the Elberta, but we need one of similar carrying quality, to come in earlier and one later than that variety."

"I think," said Mr. Alex. McNeill, of Ottawa, "the stations should study to decrease the number of varieties. We have already too many kinds—many of them very inferior, and planters should be warned against

them and advised as to the most desirable for the various sections to cover the whole fruit season."

"We have," said Mr. Smith, "not a single good all-round grape yet. What we want is Concord quality in Agawam skin. We should have a wholesale planting of seed with a view of securing something that may meet our needs. For all time we shall be compelled to ship large quantities of our tender fruits to distant markets—to the West and the Maritime Provinces—and we must have the carrying quality."

NEW FRUITS OF THE YEAR.

THE committee consisting of Messrs. Hutt, Macoun and Woolverton, reported on several new fruits worthy of further trial, as, for example, Waller's Seedling apple from Napanee, more showy than Wealthy and of about the same season; a seedling plum from Orillia, handsome and excellent quality; Lindsay's Seedling plum, from Guelph, large and of good quality; Smith's Giant blackcap, large and productive, one of the most promising, a seedling of Gregg; the Emerald plum, the earliest really good plum we have; Lack's seedling, from Lindsay, an apple resembling in beauty the Louise, but earlier; Herbert raspberry, the best red variety for the amateur; Manitoba Grape, one of the most promising for the north, as early as Champion, of as good quality as Moore.

VALUABLE APPLES FOR THE NORTH.

MR. W. F. MACOUN, of Ottawa, gave the following list of winter apples worthy of a place in orchards north of latitude 46 degrees, viz.: Wealthy, Hibernal, Longfield, Patten's Greening, Whitney, Hyslop, and, where not too severe, Northwest Greening, Dempsey No. 80, and Windsor Chief.

For summer and fall he named Yellow Transparent, Charlemov and Duchess, which without doubt are the best on the list for their season.

THE MOST VALUABLE COMMERCIAL APPLE.

IN accord with the suggestions made at the meeting concerning the many inferior varieties cultivated in Ontario and being offered for sale to planters, the Board of Control of our fruit stations has made out the following valuable list of commercial varieties to be published in our next report: *Summer,* Astrachan, Duchess: *Fall,* Gravenstein (tender in St. Lawrence district and northward); Wealthy (valuable for the north); Alexander (valuable for the north); McIntosh (especially for St. Lawrence district, but can be grown over a wide area); Fameuse (also especially adapted to St. Lawrence district); Blenheim (tender in St. Lawrence and other northerly portions of the province): *Winter,* King (for best apple sections, succeeds best top grafted on hardy stocks); Hubbardston; Greening (both for best apple sections); Cranberry (requires good soil and is adapted to the best apple districts, but especially to Southern Ontario); Baldwin (best on clay and in best apple districts); Spy (for best districts, but succeeds farther north on hardy stocks, this top working also tends to bring it into earlier bearing); Ontario (an early and abundant bearer, but short lived, recommended as a filler among longer lived trees, adaptation similar to that of Spy); Stark (for best apple districts).

UNIONS OF FRUIT GROWERS.

NOW that we are planning for unions of fruit growers in every section of Ontario, we want to gather information from every source, the following account of the working of such a scheme will be helpful:

At the annual meeting of the Massachusetts Fruit Growers' Association Dr. Grigham cited a fruit growers' association near the great lakes which is incorporated and now has 150 members.

It organized five years ago with only 15 members, but now controls 500 acres of small fruits. The first year the sales of $1,000 were made at a cost of 7 per cent. of gross receipts; 1902, sales of $45,500 were made at a cost of 2.8 per cent. The able secretary of this association says:

"Much depends on your

General Manager.

He must be a man that knows good fruit, a good bookkeeper, understand law, hustler, and in the busy season work fro m5 a. m. to 9 or 12 at night. We have three helpers in office as salesmen, besides two or three helpers two or three hours every evening and handle 200 to 1,000 cases at evening, besides work in the daytime. The manager has full charge of fruit, filling all orders and shipping to best merchants. We get orders from 75 to 100 different parties daily in the rush. General manager collects all money and turns it over to the bank. General manager writes checks, and not the treasurer.

Payments are made once a week to growers, less 10 per cent of money collected and less charges on express account. Two years ago we did not lose a dollar out of $25,000, but last year lost $60 by one consignment, and may get 20 per cent. of that yet. We get special low rates on express by railroads. Stock is $200 per share for a life member. A fruit growers' association at San Jose, Cal., like ours, sells hundreds of thousands of dollars' worth every year of prunes and dried fruit. Trainloads are sometimes shipped direct to New York, Boston and Europe. They get 3 cents per pound for prunes, when before they organized they got 1 to 1½ cents. One grower sold $10,000 worth of prunes on the trees last year.

"Such an organization, if a success, makes a great saving. The first two years we sent out our general manager, who was out two or three weeks before the berry season to solicit orders and to introduce the association to the trade. Since that our business increased so there is no need to send him out. The fruit advertised itself. We are well located, 18 or 20 miles from Minneapolis and St. Paul, with over 400,000 population. Dispose of surplus fruit if some is too soft to ship.

In general peach growers in the eastern states are very careless, almost indifferent as to the manner of shipping fruit to market, and the result is that very often a superior quality of fruit does not bring as good prices is inferior fruit put up with special pains to make it attractive. The baskets in general use in the eastern states are too large for retail trade. The best grades of peaches should never be sent to market in large baskets, but each peach should be wrapped separately and sent with as much care as eggs, if the best prices are desired. For the canning size and the wholesale trade, the Delaware basket is undoubtedly one of the most convenient forms for shipment. Inferior fruit should be kept at home and dried or fed to the pigs. The unprofitable handling of a large part of such fruit might be avoided by thinning.

In years of abundance slumps in the market are caused not so much by over production as to inferior distribution.

The Coming Need

in the eastern states is for a system of distribution which will prevent gluts in the market. At the very time when these slumps occur in New York and other large centers, hundreds of smaller towns in the interior cannot procure peaches at any price. Dr. Brigham stated that he had often paid 5 cents each for quite ordinary peaches in interior towns in New York and Pennsylvania and further west when the finest peaches could scarcely be given away in New York and Philadelphia. A well organized system of distribution is a problem which pomological societies, boards of agriculture and other associations should carefully consider.

Co-operation is the

Keynote of Success.

Indeed, without hearty co-operation and compact organization little or nothing can be accomplished, and yet to secure and maintain such organization presents the chief difficulty. Home consumption is another way to avoid gluts in the market; also the judicious use of canning and drying houses. Without co-operation and organization the marketing of fruit is largely a gamble dependent upon luck.

To form a successful organization for marketing, all that is needed is for the fruit growers to agree upon the essential principles. Make an agreement and stick to it. If you must quarrel, select someone outside of the organization to quarrel with. Be sure to pick out the

Right Man for Manager,

and do not make a man manager just because he wants a job. Get some one you know and have confidence in, a man who has made a success in business, and pay him his price. Fruit growers and farmers will eventually find that they must organize, or be driven to the wall; for single handed, they cannot hope to cope with the powerful business and financial combinations which they encounter to-day on all sides.

BUILDING ICE HOUSES

SELECTION OF SITE AND GENERAL RULES OF CONSTRUCTION.

IT is not too early to think of the ice crop to be stored next February, and to plan for a proper house in which to keep it. A correspondent of the Michigan Farmer gives some good plans for the building of a house to hold fifty tons.

It is built as near the water's edge as security from flooding will permit. The site chosen is a bank of moderate slant, and it has been found to have at least two advantages over a level location. Unloading from the upper side, much hand labor is avoided in elevating the ice; it has also been found that ice keeps much better on the side next the bank. Sometimes, in preparing the building for refilling, several cakes of old ice are found—always on the side next the bank. Air cannot enter so readily at the base on the bank side as on the other.

As the ice melts in warm weather, which it surely will to some extent, the packing is loosened, and, unless the base is very snug, air will enter and find its way upward, carrying heat to the ice. Cheaply constructed as are most ice houses, the base generally is not air-tight. An effort to make it so is made by tramping sawdust tightly inside, but this does not exclude air so well or so surely as the setting of the building a few feet in the earth.

This requires that the foundation be either naturally or artificially drained. A coarse gravel bottom will drain water off, but a tight subsoil requires artificial drain-

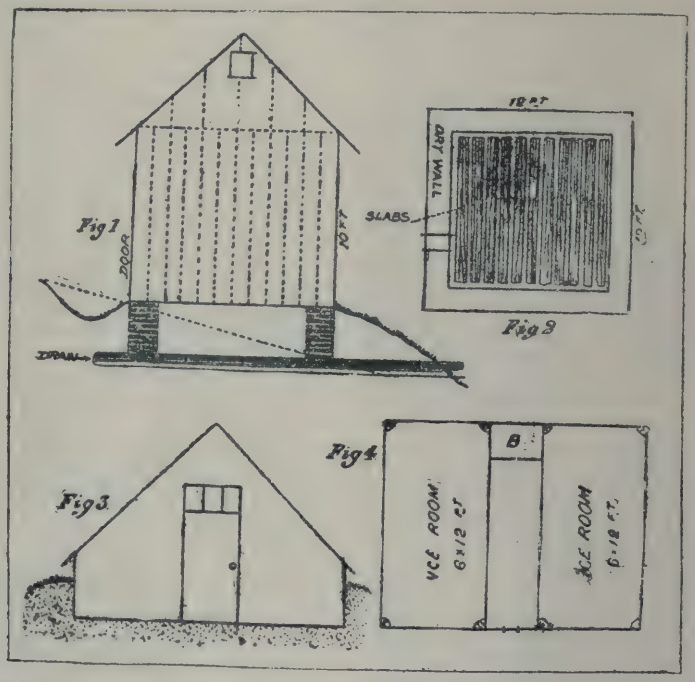


FIG. 2718. ICE HOUSES. (1) BANK ICE HOUSE; (2) GROUND PLAN; (3) A CHEAP ICE HOUSE; (4) GROUND PLAN OF SAME.

ing. Most buildings of this kind are so hurriedly constructed that no attempt at a good foundation is made. A wall of loose stones is quite good, providing earth is well tramped about it outside, and no burrowing animal is allowed to open the air passage. A mortared foundation is much better and will repay extra expense by longer and better service.

To store ice for family use a building 12 feet square is sufficient, and from such a lot of ice one may spare an occasional cake to his less fortunate or less provident neighbor. A square building is better than a long one in that less outside surface is exposed to the sun's heat compared to the inner space. This means that less material is required also. The height of the building ought to be sufficient to enable one to work when standing upright. A roof close to the sawdust imparts to it more heat than one a little farther away.

A bank ice house should be on ground having a northern or northwestern slant, and a building longer than wide should have the end to the south or southwest. These buildings are necessarily boarded inside the frame, but often the outside boarding is neglected, leaving the bare studding outside. Where thus incomplete it is found that the sun's heat is imparted to the contents much more than when there is an outside boarding. It is preferable that all sides have outside boarding and at least all except the north.

In making excavation for an ice house on slanting ground it is well to pile up the earth removed so as to have it near at hand for banking up against the wall on the lower side of building. Constructed in this way, a wall of loose stones ought to be sufficiently tight to exclude outside air, providing it is banked to the sill, and made tight about the sill with mortar. It is true that such buildings are often banked against the boards, but this is a poor way if one would have a long term of service from such a building.

Fig. 1 shows the foundation and superstructure of a bank ice house for family convenience. The dotted line shows the natural lay of the ground, while the drain underneath and the banking of earth against the walls are indicated. The walls are 1½ feet thick and 3 feet high laid of loose stones. Sills are 8 x 8 in.; studding are 2 x 4 in., set 1 foot apart, except in gables, where they are twice that distance apart. It is sheathed inside the studding with cheap lumber and the outside boarding may correspond to one's taste and means. The roof is one-half pitch, covered with good shingles. There is room to work under this roof when the building is filled to the plates.

The ground plan of this structure is shown in Fig. 2. In the bottom is thrown a double course of old slabs, or any other material to keep the sawdust from the ground. The ice is laid in so as to have 10 inches of sawdust around the outside. Two small gable windows afford the necessary ventilation above the contents.

Fig. 3 shows a cheap building, but convenient and serviceable. It is 12 x 15 feet, with an alley in the centre. The plates are 3 or 4 feet from the ground level, and the alley is in the centre where there is height. The roof may be shingled or made of boards or slabs. A door 3 x 6 feet in the north end opens into the alley, on other side of which are bins for the ice. A 3-light window over the door affords light when the door is closed. The ground plan is shown in Fig. 4 and indicated by B, in the far end of the alley, may be shelves or a cupboard for keeping fresh meat, fruits etc., in warm weather. This is a decidedly cheap and convenient building.

FRUIT DISPLAY AT STRATHROY

BY

T. H. RACE, MITCHELL.

FIG. 2719. MR. T. H. RACE, MITCHELL.
A Director of the O. F. G. A.; Chairman of the Floricultural Section of our Annual Meeting at Leamington, Ont.

FOLLOWING up our notes on the fall fairs, I want to say a few words about the fruit at Strathroy. The Strathroy fall fair gave every evidence of being a well managed and well patronized institution. The town of Strathroy is centered in a very fine agricultural district, and is itself a pretty and progressive place. But I saw no evidences of a live and active horticultural society there, though they have one, I believe. Like too many of our horticultural societies, they are combining their means and their energies with the agricultural society and devoting their attention to the fall show rather than to the beautifying of their home surroundings, parks and streets. They need some stirring up in civic improvement and horticultural effort.

The display of fruit at the fall exhibition, in some respects, pleased me very much. They have, without doubt, the soil and conditions about Strathroy for a very profitable fruit section. The Baldwin does exceedingly well there, and some of the finest Kings that I came across during the fall were in the Strathroy exhibit. Among the many varieties especially adapted to the district, besides those already mentioned, were Russets, Ribston Pippin, Talman Sweet, Cayuga Redstreak, Greening, Fall Pippin, and a very fine apple which they call Western Newton Pippin. I might add, by way of emphasis, that the Russets shown were particularly fine.

But the fruit display was not without its defects, and some of those I want to point out as a lesson to future exhibitors. Too little care was exercised in selection. Four fair sized apples with a large one on top does not make an ideal plate of fruit. The one large apple lessens the value of the plate by two points in uniformity of size. Because an apple is large, its size will not atone for the warts, spots, or other blemishes upon it. Every specimen should be free from blemishes of all kinds, fair size, and as nicely colored as possible. Above all, every specimen should be free from worms. This was the greatest defect in the Strathroy display. No matter how large or fine a specimen apple may be, a worm will destroy its value as a show apple. There is no demand for worms in the British market, and a wormy apple will not keep at home. With a little more care in selection, observing these points, the fruit growers about Strathroy can set up as fine a display of apples as one may find anywhere in the province.

*THE CHRISTMAS FRUIT TRADE

THE CANADIAN APPLE IN BRITAIN.

BY

SAMPSON MORGAN.

DURING one week recently the imports of Canadian apples into British ports exceeded 70,000 packages, against 50,000 sent from the United States during a similar period. Out of these totals there were more barrels in the Canadian shipments than in those from the United States. These facts prove that, as far as quantity is concerned, our great apple producing colony maintains the premier position in the British apple markets, especially at Christmas time. From the direct and exclusive reports I receive from the apple growing centres of the world, I am in a position, authoritatively, to say that Canada will send the largest supplies of the highest quality apples that will be on sale in the public markets of the United Kingdom during the festive season.

In recent years the fruit export trade of the colony has been developed in the most remarkable manner. The increasing popularity of the magnificent Canadian apple is due, to a very great extent, to the admirable manner in which the Department of Agriculture at Ottawa, under the able supervision of Prof. J. W. Robertson, has worked on both sides of the Atlantic.

Then the fruit growers of Canada are to be congratulated upon the possession of a paper, I mean, of course, the Canadian Horticulturist, which furnishes such sound advice to growers, packers and shippers on the commercial aspect of fruit growing. It gets into the hands of the producers on the one side, and of the best distributors on this side, and is doing a good work.

For twenty years I have written in praise of the Canadian apple. In my column series on "Popular Fruits" in the London Echo, I dealt elaborately with this toothsome and sugary dainty. In such influential daily newspapers as the Times, Standard, Globe, Daily Mail, Westminster Gazette, Birmingham Daily Vost, Sheffield Daily Telegraph, Newcastle Daily Chronicle and Glasgow Herald I have written again and again on behalf of this fancy product of the glowing Canadian summers.

The petty trade magazines in England carp at the efforts of the agricultural officials, who, through their splendid depot in Parliament street, show the people here the secured despite the opposition of parties who, without any actual experience of the of the foreign producer and shipper. The independent position maintained by the de- the British fruit markets this Christmas time, for which packers, shippers and all true friends of the industry may feel justly proud.

---

*The article in November number of this journal, from the Scottish Trader on The British Jam Trade, was written by this same author.—Ed.

LOW HEADED FRUIT TREES

A SAVING OF EXPENSE IN THE GATHERING OF THE CROP.

SOME forty years ago I helped to gather the apples from trees that were so tall that it took two men to put up a ladder long enough to reach the top of the trees, writes N. B. White to American Gardening, and this slow and expensive process led me to the conclusion that the top of an apple tree should be grown nearer to the ground, and, having some young stocks in my garden of suitable size to graft, the next spring I commenced my experiment of low head for apple trees.

I grafted fifty trees. The scions all formed a union and made a good growth, and the following spring I cut them back to about 6 inches from the ground, leaving 4 to 6 buds, and from those buds the branches for the future top, or head, were produced.

With a great deal of interest I watched them, as from year to year they advanced toward fruiting. When they were three years old I offered some of them for sale, as I had not room for all of them, but no one would buy. "Too low," they said. They wanted trees that they could plow under. In vain I stated the advantage of having them low down, but it was of no use. The people wantetd apple trees up out of the way, so I planted out most of them myself.

The trees made fine growth, and are in bearing condition now, and seem good for forty years more. Those trees, I think, were the first ever grown especially for the low heads in this country. Orchardists are now, and have been for several years, drifting towards that medium of training. Still there are many who object to it, and it is for these doubting Thomases that I am prompted to pen this article.

It might be difficult to state just which is the most important. The great saving of expense and the great ease and comfort in gathering the fruit is certainly an important one. Another is the greater convenience in spraying, pruning and thinning fruit.

Again, if an apple drops to the ground it is not ruined by the fall. Another great gain, and perhaps the greatest advantage of all when the life of the tree is considered, is the protection given to the roots from the hot sun in summer. Trees thus protected make a better growth, and seem more healthy and, as I believe, will endure much longer.

THE APPLE

CHEMICALLY the apple is composed of vegetable fibre, albumen, malic and gallic acids, sugar, gum, chloraphyll, lime and water. Many scientists and analists say apples contain a larger per centage of phosphorus than any other fruit or vegetable. This phosphorus is admirably adapted to the brain and spinal cord, renewing the essential nervous matter, lethicin, imparting vigor to the whole constitution. Apples are laxative; and it is claimed that a good, ripe apple is thoroughly digested in 85 minutes.—*Southern Fruit Grower.*

APPLES FOR COWS

VALUABLE FOOD IF GIVEN IN PROPER QUANTITIES.

ONLY a few farmers fully appreciate the value of apples as a feed for cows. Some will even tell you they "dry cows up." This erroneous notion has probably been formed by their cows breaking into their orchards, and, being very fond of apples and hungry and not having the fear of dyspepsia and diarrhoea before their eyes, gorged themselves nearly to the bursting point, cloyed their appetites for a day or two, and brought on the scours. The fault was not in the apples but in the gormandizing. Should these same cows get at the meal box or the grain bin, they would injure themselves as badly as when foundered on apples. A writer in an exchange says he has always fed them to cows giving milk, and always with good results. They are worth more to feed to cows than when made into cider.

He proved the value of apples as food for cows by actual experiment. As soon as they begin to fall they were picked up and drawn to the barn and fed. About four quarts were given to each cow for the first few feeds, until the animals became accustomed to them; then the quantity was gradually increased to a peck twice a day. Previous to beginning the feeding of apples, the cows had been receiving a four-quart ration (four pounds three ounces) of mill feed, then selling at $1.80 a hundred weight. With one-half of the mill feed taken away and a peck of apples substituted in its place, there was no falling off in quantity of milk produced, nor in the quantity of cream, as determined by the scale of the Cooley cans, and the color of the cream indicated that it was as rich in butter fat as formerly. The ration of mill feed was worth 7½ cents, one-half saved by feeding a peck of apples—3¾ cents. Call it 3½ cents; then a bushel of apples in the barn was worth 14 cents cash to feed to cows. He paid boys about a penny a bushel for picking them up.

B. F. Thorpe, in Hoard's Dairyman, says of a successful dairyman in New Jersey: "His windfalls and inferior apples and root trimmings from vegetable garden, that are valuable for relishes for his cows, find their way to their mangers, and figure to a greater extent in the year's total production than the novice would suppose." A bulletin recently issued from the Vermont Experiment Station says that the experience of four years of feeding apple pomace to twenty cows proves "that it is nearly equivalent in feeding value to corn silage," and "cows continuously and heartily fed have not shrunk, but, on the contrary, have held up their milk flows remarkably well. Fifteen pounds of pomace to a cow have been fed daily with entire satisfaction."

The value of apples was still greater when fed to hogs than when fed to cows. I fed a bushel of apples to a small lot of hogs in the morning, when their appetites were good, and they were all eaten before noon. At noon they were fed three pecks of mill feed, and when they had eaten it up clean they were given another bushel of apples, and at dark three pecks of mill feed. The two feeds of ground grain weighed fifty-one pounds, and were worth at that time 91 cents. It is not easy to fix the exact value of the apples, because it is not certain that the hogs fattened as fast when more than half their diet was apples as they would have done had their feed been all ground grain. Apparently, they fattened as fast as my hogs ever did when their ration was wholly ground grain, and when killed were found well fattened. I know by trial that without

the apples the hogs would have eaten rather more than sixty-eight pounds of ground grain each day, or would have required seventeen pounds more in place of the apples. Seventeen pounds of feed was worth 30½ cents. According to this calculation, which, I believe is correct, apples were worth about 15 cents a bushel to feed to hogs. With cheaper grain, of course, apples would be worth less; but grain will never be so cheap that apples will not be worth picking up to feed to cows and hogs. Young cattle and horses are just as fond of them as cows and hogs. One of our horses neighed and pawed to manifest his anxiety to be served with some when he saw me feeding the cows. Reason teaches that an article of diet that animals are so crazy to get must be healthful and suitable food for them when fed in moderation.

The Country Gentleman says: "As the apple season progresses, we see more and more the need of some outlet for waste apples. They can be fed to pigs and cows; and that, perhaps, is as good a use as any. Careful tests show that apples fed regularly and in moderation produce no bad effects."

Dr. Groff, in the Tribune Farmer, says: "The present season this cow (his family cow) has had now for about twelve weeks a large basketful of apples, or of pomace, twice each day and she has never in the same time produced so much milk.

FRUIT FOR BREAKFAST

SAYS the Youths' Companion: "There are thousands of men and women who are within easy reach of orchards and fruit gardens, or of fruit stalls, who sit down each morning to a heavy, greasy, fried breakfast, which taxes their digestive organs to the utmost. Many of them never take fruit at all except in the form of pie. * * * * Even in the country, where there are no fruit markets, there are few families who do not have a barrel or two of apples in their cellar in the winter. No better use could be made of these apples than to serve them at breakfast. They are best raw; but for those who cannot easily digest uncooked fruit they might be baked, or made into apple-sauce. In my own individual practice I go still further. I aim to have fruit, such as apples, pears, grapes, sometimes oranges and bananas, on the table at breakfast, dinner and supper. Bananas are simply delicious when served with acid-currant sauce as I have it; namely, without skins and seeds. At breakfast I may eat my fruit first, to be followed by a dish of some breakfast food. In the berry season I usually combine the fruit with the breakfast food. Mellow, juicy pears or a well-ripened Maiden Blush or Snow apple may be served in the same way in their season. At dinner the fruit is usually eaten the last thing, and possibly the same at supper, although none of my family seems to care so much for fruit thus late in the day.

THE PRACTICE OF UNDERDRAINING

TO secure satisfactory results careful study should first of all be given to the best manner of laying out a system of drains, the aim being to secure the greatest fall, the least outlay for tile. the least amount of digging, and the most perfect drainage.

TILE.—For underdraining there is nothing better than the ordinary round drain tile. The size to be used can only be decided by a study of the conditions under which the drain is to work. They should be large enough to carry off in twenty-four to forty-eight hours the surplus water from the heaviest rains, but it is important that they should not be too large, as the cost of underdraining is governed largely by the size of the tile used. It may be mentioned that the capacity of the round water pipes is in proportion to the squares of their diameters. That is, under the same conditions, a two-inch pipe will carry four times as much water and a three-inch pipe nine times as much water as a one-inch pipe. In fact, the larger pipe will carry even more than this proportion, because of the greater friction in the small pipe. In ordinary cases five or six inch tile are recommended for the lower part of a main drain and four-inch for the upper portion; for the branches 2½ to 3-inch are preferable.

DEPTH AND DISTANCE APART.—It is seldom necessary to lay drains more than four feet below the surface. and in most cases two and a half to three and a half feet will be found sufficient. The proper distance between branch drains depends on the quantity of water to be carried and the nature of the subsoil. In general practice the lines of tile are usually placed from fifty to one hundred feet apart. In a tenacious clay soil. however. thirty feet would not be too close.

DIGGING THE DRAIN.—The drain may be opened up in the first place by passing three or four times along the same track with an ordinary plow. Then the subsoil may be broken up with a good strong subsoil plow. In this way the earth may be loosened to a depth of two feet or more and thrown out with narrow shovels. The bottom of the drain should be dug with narrow draining spades made for the purpose. The ditch should be kept straight by means of a line stretched tightly near the ground and about four inches back from the edge. In ordinary cases the ditch need not be more than a foot wide at the top and four to six inches at the bottom. the width of course increasing in proportion to the depth of the drain and the size of the tile.

GRADING.—As a rule drains should be given as much fall as possible, and the grading should not be less than two inches in one hundred feet, if this can be secured. Careful leveling is necessary to ensure a uniform fall throughout the course of a drain. As a simple method for this purpose, one of our leading authorities recommends the ditcher to use several cross-heads made from strips of inch boards, three or four inches wide The length of the standard varies according to the depth of the drain. A cross piece about two feet long is nailed on the top of the standard. These cross-heads are then placed along the line of the ditch so that the cross pieces are in line. The proper grade is ascertained by the use of the ordinary spirit level. When ready to lay the tile a standard should be set at the bottom of the drain and marked in line with the top of the cross heads; this will. by testing every few feet, give a true grade for the tiles.

LAYING THE TILE.—When the bottom of

the drain has been brought to the proper grade and shape the tile should be laid very carefully to secure perfectly close joints. With the aid of a tile hook they may be placed rapidly and accurately without getting into the ditch. Some prefer to place the tile with the hand, standing in the ditch and stepping carefully on each tile as laid. In covering it is preferable to put the surface soil next the tiles, for if properly packed it will prevent the subsoil from getting in at the joints. The laying should begin at the outlet of the main drain, and where connection is made with branch lines enough of the branch should be laid to permit the main to be partly filled in.

JUNCTION AND OUTLETS.—All junctions of branches with the main line should be made at an acute angle, or where the fall is sufficient, from above the axis of the main. This is necessary in order to prevent the deposit of silt and the consequent blocking of the tile at the junction. Specially made joint tile may be used, or the connection may be made by cutting a hole in the main tile with a tile pick. The outlet of the drain should be so placed that there will be a free flow of water. If protected with masonry and a grating to keep out animals, so much the better. In this country glazed sewer pipe or glazed drain tile may be used to advantage for the last ten or fifteen feet to prevent injury by frost. In closing it may be well to recall the fact that trees should not be allowed to grow near a line of tile through which water flows during the greater part of the year, as the roots are apt to enter at the joints in search of water, and in course of time close the drain. Willows, poplars and elms are particularly objectionable in this respect.

THE NEGLECTED ORCHARD

KEFFER, in Univ. of Penn. Record, says: "The neglected orchard is usually neglected because the farmer does not depend on it for his living or his profits—his other acres provide these, and the orchard does all that is expected of it, produces enough apples for family use. Almost any old orchard will do that. It is only when it dawns on the farmer that his more progressive neighbor is making more money out of his orchard than out of any other equal acreage on his farm that he starts in to study the problem of fruit production. He knows he can not grow corn continuously without enriching the soil, and a yearly dressing of manure is given the corn fields. He knows that meadows become unproductive when left too long in sod, and every few years the meadow land is given thorough tillage, and for the time being grass and corn change fields. Let him apply exactly the same cultural principles in his orchard that he does in his remaining fields. Manure the orchard. Plow it. Add to the soil every year or two something in the nature of vegetable matter—barnyard manure, or a good crop of cowpeas plowed under—something that, with the frequent use of the cultivator during the growing season, will make the soil in the orchard as light and friable as the soil in the corn fields. It means work, and lots of it. But nobody expects a corn plant to produce its fruit without manure and tillage; why should the apple tree be less lightly regarded than the corn plant?"

PRUNING PLUM TREES

TAKING for granted that your trees are bought from the nursery, pruning should be commenced at the time of planting in the orchard, carefully trimming the bruised or broken ends of roots with a sharp knife. Carry out with the top the same idea you would when planting shade trees—cut back somewhere near in proportion to the loss of roots, and you will have a much stronger immediate growth than you will if no pruning is done.

If your young tree is a long switch, it is easy to plan for the future form of the tree. Cut back as low as you dare have the branches spread from the trunk. It is not desirable to have the branches up so high that a horse may pass under. Better if the branches keep the horse so far away that the whiffletrees cannot touch the body, but you will want to get under the tree yourself to pick up fruit. Some varieties will scarcely permit this if allowed to grow their own way when young.

You may sometimes buy young trees which have not been properly trained in the nursery, thus making it necessary to cut well back to force the growth of a new body rather than to have a sprawling thing which will compel the removal of large branches at some future time. If your trees thrive well, the branches will be long switches, which should be cut back to one-third of their length, otherwise some will throw out branches near the ends, and the most thrifty ones will incline to take on the form of trees themselves. The more luxuriant the growth of the switch the more positive should be the pruning. This cutting back should be repeated so long as the tendency to make long extensions of growth is continued, but after fruiting commences, attention will have to be given mostly to keeping the inside sufficiently open and preventing interlocking or crossing of small branches.

Forethought in pruning will make the trees more compact and strong, thus lessening the tendency to break down when loaded with fruit. A good time to prune is late in winter during the pleasant days when you feel as if you just wanted to do some horticultural work that makes it seem as if spring is coming. Other good times to prune are when the weather is not too hot nor too cold. It would be well to keep your knife in your pocket when the wood is frozen, and not plan for any pruning during the dog days, but even then you may help nature along if you have overlooked here or there a small branch which shows that the tree will soon have no use for it. A knife blade with a straight edge is better for pruning than the orthodox form of a hooked blade. With a slight pressure with the left hand on the branch to be removed and a drawing cut with the right hand, you can with a straight sharp edge remove a much larger branch than should be found necessary to take off.

Pruning for stubs to strike on when jarring off the curculios and gouger seems to be of double necessity. When cutting for scions, judgment should be used in regard to the future shaping of the young tree, and it would be well to do it yourself rather than to defer to the opinion of the man who wants the scions. After the trees have commenced to bear you may have difficulty in getting scions from such free fruiting varieties as the Arctic, Townsend, DeSoto, Rollingstone, etc.

Experiments in cutting back parts of trees this year on the Arctic and Baraboo, prove that we can in this way promote young growth. Reasoning from this, I think we can to some extent thus rejuvenate our old trees of such overbearing varieties

as the DeSoto, which after a few years bearing shows lack of vigor and tendency to die out. There is another kind of pruning which is of marked benefit, not only in promoting the vigor and in prolonging the life of the tree, but also in improving the quality and size of the fruit. I refer to fruit pruning as thinning, but by all means let it be done by removing the fruit and not the fruit spurs.

The curculio and gouger will try to do the thinning for you. but they make such a mess of it their work should be prevented as much as possible. Sometimes the injury from aphis is in such shape that it is well to trim off and burn the infected branches. Black knot and blights should be treated with the knife and fire, but I have not been troubled with these diseases, so can say but little about them. In conclusion, would say, keep your knife sharp.—*American Agriculturist.*

APPRENTICESHIP OF A GERMAN GARDENER

FIRST of all, it is required of an aspirant to have a fair school education; if possible, language (Latin especially) and geography, which help him considerably and save a lot of study in after days. If the young man has found a place to enter as an apprentice, the majority of establishments charge a certain sum per annum, Germany generally from 100 to 150 marks ($25 to $37.50); France and Belgium about the same. Then he must enter a contract to serve a time, generally three years. In rare cases he will be allowed a small compensation at the last year of his time.

There are some places which take apprentices without pay, but then he must generally serve a time of four years.

This time will never be forgotten by any young man who passed through it. It is a time of hard work—in many places it is compulsory to pass through evening school to collect knowledge in landscape drawing, geometry and surveying. This goes through to sometimes three years during winter. Then besides at home it is not only practical work, which occupies the young man, but also theoretical. There are the names of all the plants to be learned, their nature, native country, under what conditions they grow best, what soil is best for them; books have to be bought and studied; many employers require their apprentices to keep a day book in which all work done during the day has to be entered. Not only superficial, but to the minutest details. After twenty-six years the writer recalls many instances of apparent negligence and the rather strong reprimands he received. In this way the time passes for the apprentice under constant work with few and long between pleasures. After the expiration of his time he is called an assistant and receives his certificate, of which every young gardener is as proud of as any young girl of a new Easter hat.

Then his time comes to travel. Of every young gardener it is expected that he sees other establishments, if possible, other countries, and widen his knowledge. We all, who passed through the mill, know how proud we felt and thought we knew it all; but no matter how hard we worked and studied, after getting to a new place he finds out how little he really does know. Wherever he goes there are different methods, other plants, always something new; so it keeps him hustling to keep up to date.

It is a constant learning as long as he is in the profession. But this is a gardener. —*R. W. Unger, in Union Gardener.*

SELF-STERILITY IN APPLES

C. B. S., U. S. DEPT. OF AGRICULTURE.

ABOUT ten years ago Prof. M. B. Waite called attention to the absolute sterility of certain varieties of pears when fertilized with their own pollen. Later Prof. F. A. Waugh and others showed that all the varieties of Japanese plums and practically all the native American plums are self-sterile, and will not bear any fruit whatever, unless crossed with other varieties. This work led to similar investigations with apples, and very interesting results have been obtained. The Ben Davis apple, which proved self-sterile at the Kansas experiment station, was found entirely self-fertile at the experiment stations in Rhode Island, Vermont, and Canada. Even in Kansas, where 26 per cent. of the self-fertilized blossoms set fruit, it was found that the self-pollinated fruit was not so large or so vigorous as the fruits from cross-fertilized blossoms on the same tree. Besides, a much larger proportion of the self-fertilized fruits dropped before they reached the size of a hazelnut than of the cross-pollinated fruit.

The following alphabetical list shows the varieties of apples that have thus far been found by actual trial at one or more experiment stations to be self-sterils: Astrachan, Belleflower, Ben Davis, Blenheim, Canada Red, English Russet, Fameuse, Gravenstein, Grimes Golden, Hawley, Huntsman, King, Mann, Northern Spy, Porter, Primate, Ribston, Rhode Island Greening, Roxbury Russet, Spitzenberg, Stark, Talman Sweet, Wealthy, Williams Favorite, Willow Twig and Winesap.

The following varieties have been found more or less self-fertile and capable of producing some fruit when standing alone, and not cross-pollinated: Alexander, Astrachan, Baldwin, Ben Davis, Bough, Chenango, Early Harvest, Esopus, Fameuse, Jonathan, Ontario, Rhode Island Greening, Smith Cider, Twenty-Ounce and Yellow Transparent. With many of the varieties in this list not more than one blossom in a hundred set fruit when self-fertilized. With scarcely any was a good crop secured, and in nearly every instance the fruit has been smaller and less desirable than cross-pollinated fruit. The conclusion seems inevitable that large blocks of a single variety of apples should never be planted. Varieties should be intimately mixed in the orchard to insure cross-pollination. These varieties should be such as will blossom about the same time and be capable of cross-fertilizing each other.

With respect to the latter point, Jonathan, Huntsman and Cooper Early proved especially valuable as pollenizers at the Kansas experiment station. Prof. G. H. Powell, at the Delaware station, found that Paragon, Staymen, Winesap and Lily of Kent, all weak pollen bearers except the latter, to be inter-sterile, and should therefore never be planted together in commercial orchards for the purpose of cross-pollination. Further work along these lines to determine what varieties bloom together and are most suitable for pollenizing each other is very desirable. And since varieties behave differently toward each other in different sections of the country, these data should be determined in many different localities.

Civic and Rural Improvement
Garden and Lawn

IMPATIENS SULTANI

BY

WM. HUNT, SUPT. GEENHOUSES, O. A C., GUELPH.

THIS plant is very commonly known amongst plant lovers as the "Patience plant," and is one of the best and easiest plants to grow for the window.

FIG. 2720. MISS ELMA O'FARRELL.

It is very seldom at any season of the year, whether in the window in winter time or when growing in the open garden in summer time, that at least a few of its beautiful bright rose-scarlet flowers are not found on the tips of its pale green waxy-like foliage; whilst at times the plant is almost covered with its showy blossoms. This continuous habit of flowering and its easy culture are two strong points in favor of this perennial relative of the annual Balsam (Impatiens Balsamina), that is so well known and so often seen in flower borders during the hot summer months. The annual variety, however, is a native of tropical Asia, whilst the Impatiens Sultani is a native of Zanzibar in tropical Africa, and is often for that reason called the Zanzibar balsam.

There are several hybrids and types of the Impatiens Sultani offered for sale by plant growers besides the scarlet flowered variety, named "Rosea" being amongst the best of the newer types introduced.

Cuttings of these plants will strike readily in fine sand. The cuttings should be taken in April or May, about two inches of the tips of the shoots being best for this purpose. Care should be taken in inserting the cuttings into the sand not to bruise or tear the base of the cutting. The sand should be well watered first and holes dibbled in the

FIG. 2721. MISS MINNIE BAILEY.

sand a little over an inch in depth to place the cutting in, when the sand should be filled in level around the cutting and sufficient water given them to thoroughly moisten all the sand in the pot or box that is used. A warm place in the window where the sun does not strike directly in the middle of the day will suit the cuttings very well. The sand should be kept moist, but not saturated with water.

In about three or four weeks the cuttings should be rooted sufficiently to pot off. Small pots (2½-inch) should be used for each cutting, and a compost consisting of two parts of rich loamy potting soil and one part of sand mixed with it will suit them very well for the first potting; less sand can be used for future pottings if the plants are grown on in pots.

I have grown fine bushy specimens of these plants in the open ground out of doors during summer by planting the small plants out about the end of June after danger from frost is over. A light rather sandy soil, fairly rich, suits them best. The plants should be potted about the end of August

and taken indoors before the nights get chilly and cold. Some broken pieces of flower pot, coarse gravel, or some coal cinders should be placed at the bottom of the pots before the plants are potted, as bad drainage in the pots during winter will often cause the foliage to turn yellow and drop off prematurely.

The aphis or green fly, as well as the red spider, are often troublesome pests to these plants. Tobacco smoke or tobacco water will kill the aphis, whilst the red spider can be disposed of by dipping the foliage of the plants in tepid water once or twice a week if the plants are badly infested.

I know of no plants that will give such continuous flowering results the year round, whether grown in a greenhouse or in the window, more especially when the very little care and attention they require is taken into consideration, than these Zanzibar balsams will.

I had intended to send along a photo of a specimen of these plants with this article, but unfortunately the negative was a failure. Possibly I may secure a picture for next month's issue.

CHRYSANTHEMUMS.

The two photos I am sending are those of two of the new chrysanthemums I mentioned in the December issue, viz.: Miss Elma O'Farrell, a bright rosy-magenta colored flower, and Miss Minnie Bailey, a light silver pink flower, of a decidedly pretty rosette shape. Both are good varieties for pot culture for the window or greenhouse.

DAHLIAS

THE most convenient method of raising dahlias is to place the old roots—during the month of April—in benches or boxes, covering over with sand and stand them in a greenhouse or hotbed in a temperature of about 60 degrees. They should be kept moist, but not over wet. When the shoots attain a length of about four inches, take off as cuttings and insert in propagating bench with about same temperature. When rooted, pot off singly into three-inch pots, using a sandy compost. Shade till started, then give plenty of light and gradually harden off. Plant outdoors end of May. Training must be done according to the purpose for which the plants are intended. For exhibition blooms, three shoots only are left; these are tied to separate stakes and all buds are removed except the centre one in each shoot. But for general purposes, twelve or more shoots can be left. One strong centre stake will be sufficient, the side branches being supported to this by a string of sufficient strength; disbud to one bloom on each shoot. These remarks on training apply only to the larger double flowered varieties. For singles and pompons, little or no disbudding is necessary; all that is generally required is to give them the requisite support.—*Am. Gardening.*

THE CONFERENCE OF HORTICULTURAL SOCIETIES

ONE of the wise steps in advance, introduced by our worthy secretary, has been the division of our annual meeting into sections, so that delegates could attend to those sections most in line with their work. We have now a fruit section and a flower section; by and by we may have a forestry section and a domestic science section, all coming together for a union session each evening.

The chairman of the flower section was Mr. T. H. Race, of Mitchell, so well known to our societies by his talks on Rose Culture. One of the most valuable papers was the following, given by Prof. H. L. Hutt, of the O. A. C., Guelph, on

BEAUTIFYING HOME GROUNDS.

THE sturdy pioneers who first settled this country came with a determination to subdue the forests and to hew out for themselves homes in the wilderness. Their first aim was to clear the land for the growing of crops, and this usually kept them so busy that they had little or no time for leveling of lawns or planting of shade trees and ornamental bushes. But we have now reached a period in the country's history when comfortable homes are thickly dotted throughout the land, and more attention is being given to the beautifying of the home surroundings. Not only is the skill of the landscape architect more and more in demand, but there is a call for information on the subject by which those who have not the means to employ a professional gardener. In this paper we shall call attention to some of the leading principles which should guide in laying out and beautifying the surroundings of a country home.

In the first place it must be understood that the most beautiful scenes are, as a rule, more or less natural. We should, therefore, accept nature as our teacher, and study the materials and combinations which go to make up natural beauties.

The materials with which the landscape gardener has to deal may be classified as natural and artificial. The natural materials are the ground, grass, trees, shrubs, vines, herbaceous plants and annuals, and in some cases rocks and bodies of water. The artificial materials are trees and shrubs clipped into unnatural shapes, geometrical beds of improved flowers, terraces, walks, drives, buildings, fountains, statuary, etc. The skill of the landscape gardener in producing beautiful effects depends upon the judicious use of these materials. We shall now treat of some of these in detail.

The Ground.—One of the most important features in the ground surrounding a home is the contour of its surface. This is what gives character to a place. A low lying lawn with something of a depression in the centre, has an altogether tame appearance, while an otherwise similar lawn, with but a slight covering in the centre, has an altogether different appearance. Sometimes a perfectly straight surface line is pleasing, and the level lawn is more in keeping with the place and its surroundings than any other could be, but as a rule some variation from the straight line is preferable. In nature we take more delight in bold outlines of hills and valleys than we do in level stretches of country. This is because we love the variety which hill and hollow affords, and this suggests the desirability of introducing undulations in landscape gardening whenever the size of the grounds and other circumstances will permit.

The buildings should, of course, be on the highest elevation, and the grounds should be made to slope away from them. On a steep hillside the grounds may have to be terraced, which, if well done, adds much to the appearance of a place, but likewise adds considerably to the cost. Whether the grounds are flat or rolling the small irregularities of the surface should be levelled and smoothed so that the mower may be worked easily. Wherever much grading or filling has to be done due allowance must be made for settling, and a few inches of good surface soil should always be left on top. The character of the surface soil is a matter of great importance, because on it depends the luxuriance or poverty of the grass and trees growing over it.

The Green Sward.—There are two ways of clothing the ground with grass, either by sodding or by sowing grass seed. On small plots or steep banks and along borders, sodding is the quickest and most satisfactory method, but on large areas seeding is not only the cheapest but the best. In preparing the ground for seeding it should be plowed, harrowed, rolled and made as fine as possible, and as a final preparation nothing is better than going over it carefully with a garden rake.

The kind of seed to sow is a matter of importance. Coarse grasses, such as timothy, are not suitable for lawn making. Many of the finer and more delicate grasses may be obtained in "lawn grass mixtures," but the most satisfactory mixture we have found is made up of equal parts by weight of Kentucky blue grass, red top grass, and white Dutch clover. All of these are hardy and stand well the extremes of our climate. The seeding should be done on a still day when there is no wind to carry the lighter seeds. Thick seeding should be the

rule. Three or four bushels per acre is none too much for seeding down a lawn. In fact, the grass should come up as thick as the hair on a dog's back. After the seed is sown it should be lightly raked in, and if the weather is dry it is well to go over the ground with a hand roller. The work of making a lawn may be done at almost any time of the year, but where much levelling and filling is necessary it is well to do the grading in the fall, so that the ground will have finished settling by the spring, and then the surface may be raked over as soon as it is dry enough to work, and the seeds sown as early as possible. A lawn sown early in the spring should be nice and green by the middle of the summer, or seed sown early in the fall should give a good grassy carpet early next spring.

Keeping a Lawn.—To keep a lawn in prime velvety condition it should be mowed frequently, particularly during the season of rapid growth. The mowings should be so frequent that none of the grass should have to be raked off. This is the practice followed on well kept city lawns where men, money and mowers are available. On the farm, where these articles are not so plentiful, and where the area to be gone over is usually greater, it may be kept in very respectable condition with the ordinary farm mower, the cutter bar of which should be set low and the knives kept sharp. On the farm the front yard and back yard, the lanes and the roadsides should all be levelled, seeded and put in such condition that they can all be gone over with the farm mower, and if the mowing is done as often as the grass is high enough for the knives to catch nicely the improvement made in the appearance of a place would in many cases add nearly 50 per cent. to the value of the property.

To maintain a luxuriant growth and a rich dark green in the color of the grass, the lawn should occasionally receive a top dressing of stable manure in the fall. The soluble portion of this is washed into the ground by the fall and spring rains, and early in the spring the coarsest portion of the manure should be raked off.

Trees and Shrubs.—In the trees and shrubs we have some of the finest forms of natural beauty. They present a great variety of ornamental qualities, in habit of growth, in size, in color of bark and foliage, and in their flowers.

Taking the trees first, they may naturally be divided into two classes, the deciduous and the evergreen trees. If space permitted we could give a lengthy list and mention the special claim of each to a place on the lawn, but we must be content with mentioning only a few of the most desirable. Among the maples we have the sugar maples, the soft maples, and Weir's cut-leaved variety of the same, the Sycamore maple, and the Box elder, sometimes called the Manitoba maple, which is particularly valuable on new places on account of its rapid growth, but along with it should be planted some of the more durable trees, which will come in and last long after the Box elder has served its purpose. As a successor to it we know of none better than our native American elm. In its finest form, with feathered trunk, high spreading arms and long, pendulous branches, this is, in our opinion, the most stately and graceful of our native trees. On large grounds, where there is room for variety, some of the rugged oaks and fragrant lindens add a charm to the scene. The cut-leaf weeping white birch is very ornamental in both summer and winter, and shows a striking color contrast, particularly when placed so as to have for a background a group of evergreens or a dark colored building.

Among the evergreens the pines and spruces occupy a first rank. The Austrian and Scotch pines make handsome specimens, although when young our native white pine is equal to, if not superior to, any of the foreigners. The same might also be said of our notive white spruce, as compared with its more vigouous relative from Norway. But for a handsome specimen of nature's coloring let us have the dainty little blue spruce of Colorado. Among the arbor vitaes, junipers and retinosperas there are some very beautiful forms, such as the pyramidal and globose arbor vitae, the tall Irish juniper, and the plumose retinospera, but those last mentioned are less hardy than the arbor vitaes and require protection for a few years in the colder sections of Ontario.

Ornamental Shrubs.—For a list of some of the most desirable and hardy ornamental shrubs adapted to our northern section, I cannot do better than refer intending planters to the valuable list given in Mr. Macoun's report in the Central Experimental Farm Report for 1897. One hundred species and varieties are there mentioned, with twenty-five of the most desirable marked. If we were compelled to reduce the list to half of that number, we would from our own experience select the following: The Caragana or Siberian pea-tree, Hydrangea paniculata, the Tartarian bush honeysuckle, the mock orange or Philadelphus, the golden currant, Spirea Van Houtii, the Weigelia, the Purple fringe, the oldfashioned lilacs in variety, the snowball or viburnum, and last but not least, roses in variety.

The Arrangement of Trees and Shrubs.—To artistically arrange and distribute a collection of trees and shrubs on the lawn requires much more skill and judgment than to set out trees in a straight line in an orchard. The following rules should be observed in lawn planting:

1. **Follow as nearly as possible the natural order of arrangement.** Nature does not plant in stiff and formal geometrical lines, but rather in irregular profusion, in too much profusion. It is often necessary, therefore, to modify the natural arrangement to meet the needs of the case. One has said that "the aim should be to exhibit nature idealized rather than nature real." A prominent American landscape gardener tells us that for his first lesson in arranging trees on the lawn he was told to take in his hand as many stones as he had trees to plant; to stand by the house and throw them in the direction he wished the trees to stand, then plant wher-

ever the stones fell. And he says that with a few slight modifications the effect was all that could be desired.

2. **Arrange to give an air of breadth and expanse to the place.** This is a most desirable effect, and is secured by preserving a more or less open lawn in front of the house, by scattering and grouping the larger trees at the outside of the grounds so as to more or less hide the boundaries. This suggests an unlimited extent, beyond what the eye can see at any point. Another means is by opening vistas between the trees, looking out upon distant scenes beyond the boundaries. In this way we may shut out undesirable objects, and we may appropriate to ourselves desirable scenes, such as a wooded hillside, a stretch of river, or a church spire, and thus make our little grounds seem like part of an extensive park.

3. **Arrange for trees to give comfort as well as ornament.** One of the first considerations should be to shade the buildings from the heat of the sun and to shelter them from the sweep of the prevailing winds. On the south and west should be planted a few of the largest trees, such as elms or maples, not so close as to exclude the light from any of the windows, nor so that any of the branches, when the trees are full grown will overhang the house, but close enough that their shade will fall upon it. In all planting the effect should be watched from the principal windows, and we must take into consideration what the results will be when the trees are full grown.

As a protection against the sweeping winds of winter some of the strong growing evergreens, such as pines and spruces, are most useful. Thick belts or clumps of these should be planted on the most exposed quarters, and along with them may be planted a few of the light colored deciduous trees. In winter the evergreens give a cosy appearance to the place, and in summer their sombre darkness is relieved by the bright green of the deciduous trees.

In arranging the smaller trees and flowering shrubs these may be grouped into ornamental groups, or occasionally fine specimens may stand out by themselves. When grouping into clumps the tallest growing specimens should be planted in the centre, and along the border the smallest shrubs should come to the front so as to blend the grass with the taller trees in the background.

Beautiful color combinations and contrasts, both in flower and foliage, may often be arranged if the planter understands his work. For instance, a beautiful color contrast is obtained by planting a purple-leaved barberry near a golden-leaved spiraea or a dark Australian pine as a background for one of the light colored Colorado spruces.

Vines and Climbers.—Among the vines and climbers we have a number of beautiful species which may be made very effective in many ways in beautifying the home surroundings. They are particularly valuable on small grounds and town lots, as they take up so little room, but they are also quite as valuable in beautifying a country home. One of the most hardy and vigorous is the common Virginia creeper. This is excellent for covering a summer house or an unsightly wooden wall. As a covering for a brick or stone wall the Boston Ivy (Ampelopsis Veitchii) is one of the handsomest. In northern sections it requires winter protection for the first few winters, but when once established it grows rapidly, and will soon convert a brown or red front into a wall of living green. For a handsome, hardy flowering climber we have nothing to equal Clematis Jackmani, with its large purple flowers; and Clematis paniculata, with its innumerable small white flowers late in the fall. Hall's climbing honeysuckle and the Chinese Wistaria are beautiful climbers, well adapted to climbing verandah posts or festooning a balcony, but they will not stand our winters without protection except in the southern parts of the province.

Walks and Drives.—These are not in themselves very ornamental, but they are necessary and have an important effect in the appearance of a place.

When properly located they convey the idea that the place is inhabited, and they seem to impart an air of welcome.

As the walks and drives are artificial, and not in themselves ornamental, there should be as few as possible. Business roads should as a rule be straight, but pleasure drives give more pleasure if they are laid out in graceful curves. The curves give variety and help to relieve the angular outlines of the buildings. They should not, however, be introduced at the expense of utility, and should offer no temptation to take short cuts across the grass. Whenever a curve is introduced there should be trees or some object in the road to make the curve appear necessary. If such are not there when the drive is laid out, they may be planted afterwards. A curve without some apparent cause for it looks meaningless and affected.

The drive, whenever possible, should enter at the side of the lawn, and curve gently around towards the buildings as though it were the nearest and most natural way of approach. It should be dotted here and there along the sides with trees and shrubbery, which partly screen the buildings from sight, so that we keep getting a different view of the house as we approach. This gives variety and pleasure, and always leaves just enough unseen to make us feel like following it up to see where it leads to.

The width of drives and walks should vary according to their length and the amount of travel upon them. If long and much travelled the drive must be wide enough for two rigs to pass easily, but if short and not so much used, 8 to 10 feet, or room for one wagon, is enough. Walks or footpaths will vary from 3 to 5 feet. The drives and walks should be properly graded and made slightly crowning from the centre to the sides so as to give good drainage. If good gravel is obtainable they should be covered with gravel, raked smooth and rolled hard.

Fences.—As a rule fences largely enter into

most landscapes, and are worthy of note. They are artificial materials, and at best they are necessary eyesores, but in the majority of cases their necessity is only imaginary. If all of the really unnecessary fences were removed, and the ground which they occupy leveled and seeded down or put under crop it would make a wonderful difference in the appearance of the country. It would remove a great harbor for weeds and insects; it would effect a great saving of labor and expense, and it would remove one of the most striking features which advertise the slovenly farmers all over the country. The only fences necessary, or which should be necessary, are those for the purpose of fencing in stock, and not fencing out that of our neighbors. Fences, in many cases, might be movable or temporary. Roadside fences in many sections might be dispensed with, the ground levelled and seeded and the grass kept mowed from the boundary to the roadbed. Bill Nye says that "the farm without a fence in front of it looks as if the owner were honest and thought his neighbors the same." If a permanent fence is necessary let it be as inconspicuous as possible, or let it be an ornamental hedge.

Some of the other artificial materials sometimes used in landscape gardening are trees, trimmed into fantastic shape, fountains and statuary, flower beds of geometrical designs. All these are artificial and should be used with as much discretion as one should use in wearing fine jewellery. The more the artificial prevails in the general surroundings the more these can be used without giving offense. In proximity to large and expensive buildings, or in extensive parks, they may have their place, but on the farmer's lawn, where most of the surroundings are natural, and where the buildings are not elaborate and costly, they would be altogether out of place.

Another excellent paper was contributed by Mr. A. K. Goodman, secretary of the Cayuga Horticultural Society, through whose exertions the town of Cayuga and its surroundings have been wonderfully improved during the past few years. The following is his paper:

THE WORK OF OUR HORTICULTURAL SOCIETIES IN OUR TOWNS AND CITIES.

THE work of our Horticultural Societies depends largely on the individual enthusiasm of its members. The world has been full of great messages. There has been wonderful progress and development in literature and art, in all that is beautiful and good. The message of this society is to take up the work and receive in return better health, a new lease of life. Who are to be the messengers? The local societies that we have formed. After the message is well established it becomes the message to the individual. This is to join the local society, to improve your own surroundings and get a home of your own. That means that you are to get up early and live a regular life. If you study nature, the first thing that strikes you is the system about it.

A lesson that the society needs is the lesson of co-operation. See that your town is in the front rank of improvement. Keep pounding away until you fairly make the council take hold and do something. It is pretty hard for one man to go to the council and try to get them interested. It is the individual member's duty to promote an interest by growing everything he can as well as he can, improving everything, and giving the world what he can. I do something like my friend, Mr. Race, and provide all my friends and my neighbors with boxes of flowers, and it looks as though I was in the business and expected a return for it. My return is improvement in my own character, and in my other lines of work.

The most important thing around the town is the drainage, and the horticultural societies should take very great interest in that, because on the drainage depends the health of the community. Water, like men, to keep out of mischief, must be always on the move. There must be no stagnant pools. The roads should all drain to their proper water courses, the gardens should be drained, and everything about the property should be drained. The water should keep moving. You look in a man's back yard and see nature working out her system of irrigation. There is a dry spell, and the earth opens in cracks and fissures. The heavy rain comes, and away rushes all that fever and disease into the well, and soon a typhoid fever breaks out and a loved one is lost. All this because the man did not realize the message that was brought to him by the horticultural society. Another thing, it encourages thrift about the home. Many of the crimes of the age are due to idleness. You are very lucky in the neighborhood if idleness does not lead to drink or crime.

Coming back to the home, a good beginning is the planting of an asparagus bed, or the growing of a little parsley. Get a man started, and soon he will want to show his work to everybody.

Then go to the schools. We neglect our schools. Some of the trustees neglect the school building. They will not go into the building to see if it is properly lighted or heated, or the grounds laid out properly and the children given a chance to play. I was glad to see that in Toronto Junction they have spent $12,000 in getting a playground for the school. In most cities they skimp the school grounds. If you do not begin with the children you might as well drop the work right now, because you cannot expect older people to break off their habits. You must get the children interested first.

Then go along the streets, to the different public places. The street is often neglected as to shade trees. They should exist for beauty, and for the protection of the pedestrian. Also, they

increase the value of property. Anything you make more beautiful you make more valuable. People will like to come to the streets. Refinement and beauty do not exist only in immense buildings, for the humblest of homes can be made a bower of roses, and there is just as much refinement and culture as there is in a large home. Ruskin says that the character of a people is displayed in their architecture. That is not true in this country, where people have to take things as they find them.

Another thing that seems awful to me is the condition of the church houses and the churchyards. This is the fault of the clergymen. There ought to be more life in their sermons. A "Nature Sermon" from a clergyman who does not know anything about it falls flat. The church grounds should be models of neatness and taste.

The promenades is another thing that should receive attention. Attractive promenades will induce people to go out walking. The tongues get a great deal of exercise in this age, but the legs do not get so much. There should be more walking, more exercise.

Next as to the driveways. There is no excuse in this country why any man should not swim and shoot and ride and be pretty good at any kind of sport, and the driveways and promenades would encourage more of that sort of thing. I am a great believer in keeping up the driveways.

Another thing is the roads leading into the towns. Good roads are a great assistance in building up a town. I have known many towns to be stunted because the roads are not in good condition. Trade moves to the best centers of transportation.

The horticultural societies should encourage individual gardening by displays, premiums, and by teaching people of the work and how to do it. If there is any religion in a man at all, when he comes into the garden his nature becomes uplifted. He remembers that the Lord walked in the garden. The Lord walked in the garden of Eden. The Lord of Life walked in the garden of Gethsemane, and in the garden was a grave. Every man's life is a garden and in every man's life is a grave. Man is the finest flower of God's creation; therefore, in your garden let there be order and beauty, and a constant striving after better results.

A very good idea is to go to the public gardens of our towns and rub shoulders with the gardeners, the people in charge, and find out from the practical men how they are doing things. It is simply wonderful the information you can get, and in many cases you can apply it to practical use when you get home.

The horticultural society has a general tendency to uplift the town. Canada is on the eve of a wonderful burst of opportunity. Now is the time for us to take the opportunity. People should spend money in uplifting the town, and the money spent on civic improvement is not wasted.

To come to our little town, Cayuga. We had one of the dirtiest and most miserable of towns. We started our Horticultural Society. Of course Mr. Beal is responsible for the whole thing. He started the machinery and pressed the button, and we have kept it going. We have cleaned up the two schools, planted hedges, and done wonderful things there. We have spent probably $500 on these grounds since we started them. We have spent $10,000 on cement sidewalks. We have new public gardens, and now each neighbor vies with the other as to who would have the best boulevard. The first thing we knew we had landed a factory, a leather goods factory, employing forty hands, which we never would have done if we had not started improving our town. And we owe it all to the Horticultural Society.

PEANUT CANDY AS FOOD.—Professor Hilgard, of the University of California, recommends peanut candy as a healthful substitute for a meal when it is necessary to omit one, says *Country Life in America*. The starch of the peanut, and the sugar in the candy, are both blood and tissue builders and are exceedingly nourishing and at the same time harmless when obtained at a reputable candy store.

THE ICE CROP.—Have the ice pond cleared out and made tight before letting in the water to be frozen, and see that all sources of pollution of the water are cut off. Freezing does not purify water, and if impure the ice will not be fit for use. Impure ice is more dangerous than impure water, as the impurity of it is so much more likely to be overlooked in the hot weather. Clean out the ice house, and if necessary thoroughly repair and drain it. If no ice houses exist now is the time to build one if it is to be used this winter.

COLEUS IN WINTER

COLEUS plants, as a rule, are not a success in an ordinary window in the winter season. For several years I experimented with them, using both old and young plants, keeping them cool or hot, moist or dry, and finally hit on a plan by following which they area complete success every year. My experience has been that old plants generally do not do well the whole winter through. When the main stalk becomes tough and woody it is time to discard it and begin afresh.

My plan is this: Just before the first killing frost in the fall. I go the rounds of my coleus plants taking about three slips of each variety. These are placed in glasses of water to root; when nicely rooted they are potted off into three or four inch pots in a soil composed of two-thirds garden soil (not too rich) mixed with one-third sand. I find a very rich soil is not conducive to extra bright color in the leaves, and I have known the plants to be grown beautifully bright in pure sand. I keep two plants of each kind and they remain in the same pots until spring. They are placed in the highest shelf in my bay window. which makes them six feet from the floor and one and a half feet below the top of the window. It is of necessity a very hot place as, in addition to the heat from the stove, the sun beats in on them all the forenoon and half of the afternoon of every sunny day.

As the plants begin to grow tall, I pinch out the ends of the shoots to make them branch freely until about February 1st, when I let them grow for slips. They are usually large enough by March 1st, when I put them in water to root. In a few days the roots appear and they are potted off as before. I give the new plants the upper shelf then to get them in good condition to bed out in May and set the old stock plants aside. Some of the old plants will branch out again and raise another lot of slips, which are discarded at once.

From the time the slips are potted off in the fall until March that high shelf is my particular pride. The gorgeous colors and soft velvety texture of the leaves are as beautiful as flowers.

Some of the best varieties are Golden Bedder, Charm, John Goode, South Park and Golden Crown for yellow sorts; Louise Chretien, Ruby and Moonbeam among white and pale tints; Crisp Beauty, Geo. Simpson among light red and pink sorts; Dr. Koch, Brightness, Firebrand. Fire King and Midnight, crimson and maroon; Progress, Mrs. Hunt and Butterfly among mottled and shaded ones.

There are a few new varieties that are of a stronger growth, with leaves of immense size for coleus. I have not tried any of them, but have seen them displayed in greenhouses and also at our last agricultural fair. Some of the leaves were five or six inches long, and though the plants are handsome as decorative plants, they do not seem so appropriate or beautiful for bedding purposes as the old sorts. A specimen plant is a lovely sight, but a mass of them spoils the effect.

Coleus, as a rule, are remarkably free from insect foes. I never found any but the mealy bug on mine, but they can kill the plants in a short time, as they seem to sap the life of the plant so that it wilts and falls over before one knows anything is the matter with it. Eternal vigilance is the best remedy, but when you find them on the plants the use of alcohol or whisky on them will kill them at once.

It is hard to give coleus too much heat. but a chill will cause the leaves to fall off. Mine are watered three times a week during cold weather. Later in spring they need it every day. They are sprayed every morning before the sun is on them. To sum it all up, young plants with plenty of heat and not too much water will give one a fine display of coleus all winter.—*Vick's Monthly.*

The Canadian Horticulturist

COPY for Journal should reach the editor as early in the month as possible, never later than the 15th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE. $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 per month. Copy received up to 20th.

LOCAL NEWS—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers' Association Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc, should be made payable to G. C. Creelman, Toronto.

ST. LOUIS FAIR NOTES.

New York grape growers have two tons of choice grapes in cold storage and will display them in the Palace of Horticulture on the opening of the World's Fair.

Two acres immediately west of the Palace of Agriculture at the World's Fair grounds have been converted into a natural garden. There may bee seen all the wild flowers and shrubs indiginous to the Mississippi and Missouri valleys.

NIAGARA DISTRICT FRUIT GROWERS.

THE following officers were elected for the ensuing year: President, C. H. Honsberger, Jordan; Vice-President, George S. Stewart, Jordan Station; Second Vice-President, James Dunlop, St. Catharines; Third Vice-President, S. M. Culp, Beamsville; Secretary-Treasurer, C. E. Fisher, St. Catharines.

THE WESTERN NEW YORK Horticultural Society will hold its 49th meeting at Rochester in the Common Council Chamber of the City Hall, on January 27 and 28. An interesting programme is announced. John Hall, Rochester, is the secretary.

THE MONTREAL APPLE MARKET IN DECEMBER.—The Montreal Trade Bulletin says: Complaints are beginning to be heard regarding the unsatisfactory nature of account, sales received by shippers from the other side, which is not to be wondered at considering the immense quantities of apples that have been pouring into Great Britain during the past 2½ months. One would suppose that English consumers would have been surfeited by this particular fruit before

this. Therefore, the recent dullness and depression in prices should cause no surprise. On the whole shippers have done fairly well this season and are looking for better times about the first of the year. The cause of the recent low prices on the other side was said to be due to the poor quality of fruit arriving at the different ports. Last week's shipments from all Atlantic ports showed a big decrease amounting to only about 60,000 barrels, which should afford a good chance for the clearance of held over stocks in the English markets. The market here keeps very dull and depressed owing to the large quantity of frozen apples selling to pedlars; about 1,200 barrels were sold at auction which realized from 80c. to $1.60 per barrel, the average being about $1.25. Until this class of goods is worked off there will not be much doing in the better qualities, as the cheap stock will fill a considerable portion of the demand in the meantime. No. 1 fruit has sold at $2.50 to $2.75 in good sized lots, and No. 2 at $1.75 to $2.25.

SALE OF CANADIAN FRUIT IN IRELAND

TO the Secretary Ontario Fruit Growers' Association:

I have recently been in communication with the Canadian Department of Agriculture relative to the advisability of Canadian fruit frowers having a representative here and have consignments sent direct to the Irish market, instead of by way of Liverpool or Glasgow. The department approved of my suggestion, and proposed I should communicate with the Fruit Growers' Association to ascertain if they would fall in with my scheme, and thereby bring them in closer touch with these markets.

As you are no doubt aware, American and Canadian fruit exporters supply the English markets (whence we get our supplies) through brokers in London and Liverpool. Bery little fruit is grown in Ireland, with the result that American fruit exporters have always found a good market here, but nevertheless Canadian growers would have a good field to work in if they so desire.

My suggestion is that one or more Canadian Fruit Growers' Associations establish a central agency in Dublin for the supply of the Irish market, the fruit to be sent here direct by say, the Head or Lord Line boats, the agent not to handle any but Canadian fruits, and this agency I am prepared to take up and can undertake to work it successfully. Amongst the advantages of such an agency with direct representation are:

The growers would have an agent on the spot to look after their interests.

Direct consignments to Dublin would save to the growers and consumers the heavy cross channel rates incurred by the present system. These rates are nearly as heavy as the rates from Canada.

A saving to growers and consumers of the profits now paid to brokers and wholesale fruit dealers in Liverpool, London and Glasgow.

The tendency nowadays is to buy direct from the producer wherever possible. The public realize that they have to pay dearly for an article which, before reaching them, passes through three or four sets of dealers, all requiring a certain profit. At present, after providing for (*a*) middleman's profits in England, (*b*) heavy freights from Canada to England and thence to Ireland, and (*c*) Irish retailer's profits, Canadian and American apples retail here at a penny to twopence apiece.

I would impress on both Canadian fruit growers and shippers that an agent here engaged solely in their interests is absolutely necessary if they wish to successfully compete with Americans, Australians and other competitors.

The Americans find a good market here; Australian apples are now prominent here,

and there is certainly no reason why the Canadians should not do well, if not better, but it will be necessary for them to bring their their products before the people, and this can be done by means of a central agency devoted solely to pushing Canadian fruits. I can undertake to obtain for the Ontario Fruit Growers' Association a good paying market in Ireland by working on these lines, and I would therefore thank you to lay the matter before the members and await the favor of your reply.

I can, of course, furnish first-class references, and if required, am prepared to give security to any amount desired.

Yours faithfully,

J. H. SHERIDAN.

Dublin, 17th October, 1903.

FOUR FREE FRIENDS FOR FARMERS

Our money winning books, written by men who know, tell you all about

Potash

They are needed by every man who owns a field and a plow, and who desires to get the most out of them.

They are *free*. Send postal card,

GERMAN KALI WORKS
95 Nassau Street, New York

FERRY'S SEEDS MEET ALL NEEDS

Experience has established it as a fact. Sold by all dealers. You sow—they grow. **1904 Seed Annual** postpaid **free** to all applicants.

D. M. FERRY & CO.
WINDSOR, ONT.

Trees

True to Name

We sell only the best rooted, straight, clean, well branched trees, true to name, at attractive prices.

For Sale at Bargain Prices

New Niagara Peach Trees, 3 to 4 ft. high, at $6.75 per 100. Apple Trees, $6.00 per 100 and up. Standard Pears, $8.00 per 100 and up. Plums, $10.00 per 100 and Cherries, $15.00 per 100 and up. These trees are 4 to 5 feet high and desirable for orchard planting. Send for our new 112 page illustrated catalog. Send us a list of your wants for special prices. We can save you money.

Green's Nursery Co., Rochester, N.Y.

$1,000 REWARD

To anyone who will prove we do not do as we advertise. We want to have our marvellous home-and remedies used by every family in America, and we intend to give away at least 25,000 DINNER SETS in order to do this. Do you want one? Please note the only conditions. Send us your name and address and we will send you eight boxes of our remedies; sell each box at 25c. and return us ONLY $1.00 of the $2.00 received for the sale of our medicine. This $1.00 is to show your good faith and that you really want the dishes. The second dollar you send us ONLY after you receive the dishes and have actually used them, and are entirely satisfied that they are equal to any $10.00 set you can purchase in the country. We trust you with the dishes and also with $1.00 received for our medicine. We do this because you may have been buffaloed by some concerns and we want you to be thoroughly satisfied before parting.

The dinner set consists of 100 pieces, and is FULL size for family use; including soup plates, dinner, tea, and bread plates, fruit and saucers, cover dishes, coffee pot, butter and milk pitcher. They are handsomely decorated with blue, green and gold. Or we will allow you 50 per cent. commission for selling our home remedies.

COLONIAL MEDICINE COMPANY, No. 71 BROADWAY, DEPT. 97, NEW YORK.

BOOKS FOR HORTICULTURISTS.

FRUIT, FLOWERS, ETC.

Amateur Fruit Growing. Green $0.50
Apple Culture, Field Notes on. Bailey. 0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen 1.50
Bush Fruits. Prof. A. Card 1.50
Canadian Garden. Mrs. A. L. Jack ..... .50
Chrysanthemum Culture. Morton. Cloth .. 1.00
Chrysanthemums, How to Grow ..... .25
Cider Makers' Handbook. Trowbridge 1.00
Cranberries, Cape Cod. James Webb. Paper ..... .40
Cranberry Culture. White 1.00
Crops, Spraying. Clarence M. Weed ..... .25
Dahlia, The. Lawrence K. Peacock ..... .30
Evolution of Our Native Fruits. Bailey 2.00
Floriculture, Practical. Peter Henderson ... 1.50
Flower Garden, Beautiful. Matthews ..... .40
Flowers, and How to Grow Them. Rexford .50
Forcing Book. Bailey 1.00
Forest Planting. Jarchow 1.50
Fruit Culturist, American. Thomas 2.50
Fruit Grower, Practical. Maynard ..... .50
Fruit Harvesting, Marketing, etc. F. A. Waugh 1.00
Fruits and Fruit Trees of America. Downing 5.00
Fruit, The. P. Barry 1.50
Fumigation Methods. Willis G. Johnson ... 1.50
Fungi and Fungicides. Clarence M. Weed. 1.00
Garden Making. Prof. L. H. Bailey 1.00
Grape Culturist. A. S. Fuller 1.50
Grape Grower's Guide. Charlton ..... .75
Grape Growing and Wine Making, American. Prof. George Husmann 1.50
Greenhouse Construction Prof. L. R. Taft. 1.50
Greenhouse Management. Prof. L. R. Taft. 1.50
Horticulture, Annals of. Prof. L. H. Bailey. 1.00
Horticulturist's Rule Book. Prof. L. H. Bailey ..... .75
House Plants and How to Succeed with Them. Lizzie Page Hillhouse 1.00
Insects Injurious to Fruits. Saunders 2.00
Irrigation Farming. L. M. Wilcox 2.00
Lessons with Plants. Bailey 1.10
Mendel's Principles of Heredity. Bateson .. 1.30
Nursery Book. Prof. L. H. Bailey. Cloth . 1.00
Nut Culturist, The. Andrew S. Fuller 1.50
Peach Culture. Fulton. Revised edition ... 1.00
Pear Culture for Profit. Quinn. New and revised edition 1.00
Plant Breeding. Bailey 1.00
Plants, Handbook of. Peter Henderson. New enlarged edition 3.00
Plants, Propagation of. A. S. Fuller 1.50
Plants, Your. James Sheehan ..... .40
Plums and Plum Culture. F. A. Waugh 1.50
Principles of American Forestry. S. B. Green 1.50
Principles of Fruit Growing. Prof. L. H. Bailey 1.25
Pruning Book, The. Prof. L. H. Bailey 1.50
Quince Culture. W. W. Meech 1.00
Rose, The. Its Cultivation, Varieties, etc. H. B. Ellwanger 1.25
Rose, Parsons on the 1.00
Small Fruit Culturist. A. S. Fuller 1.00
Spraying of Plants. The. E. G. Lodeman .. 1.00
Strawberry, The A B C of the. T. B. Terry A. I. Root ..... .50
Strawberry Culturist. A. S. Fuller. Illustrated ..... .25
Survival of the Unlike. Bailey 2.00
Systematic Pomology. F. A. Waugh 1.00
Vineyard at Lakeview. My ..... .50
Woman's Hardy Garden, A 1.75

LIVE STOCK.

American Standard of Perfection 1.00
Artificial Incubating and Brooding. Cypher .50
Cattle Breeding. Warfield 2.00
Feeds and Feeding. Henry 2.00
Horse Breeding. Sanders 1.50
Horses, Cattle, Sheep and Swine. Curtis ... 2.00
Pigs, Breeds and Management. Spencer ... 1.00
Stock Breeding. Miles 2.00
Success with Poultry 1.00
The Domestic Sheep. Stewart 1.75

VEGETABLE GARDENING.

Asparagus. Hexamer $0.50
Cabbage, Cauliflower and Allied Vegetables. Allen ..... .50
Vegetable Gardening. Green 1.25

GENERAL AGRICULTURE.

Agriculture. C. C. James ..... .30
Chemistry of the Farm. Warington ..... .90
Fertility of the Land. Roberts 1.25

Any other book on Agricultural topics will be procured at lowest price.

Address all communications to

G. C. CREELMAN,
Parliament Buildings, Toronto.

STILL AT THE FRONT

with the best assorted stock that can be procured

OUR SPECIALS

October Purple and Climax Plum, Rostiezer Pear, Bismarck Apple Trees, Campbell's Early Grape Vines, Cumberland and King Raspberries, Ornamentals in variety.

Send for special prices on apple trees for fall. We ship direct to our customers.

Free catalogue is our agent. Send for it.
Satisfaction at all times.

A. G. HULL & SON,

Central Nursery, St. Catharines, Ont.

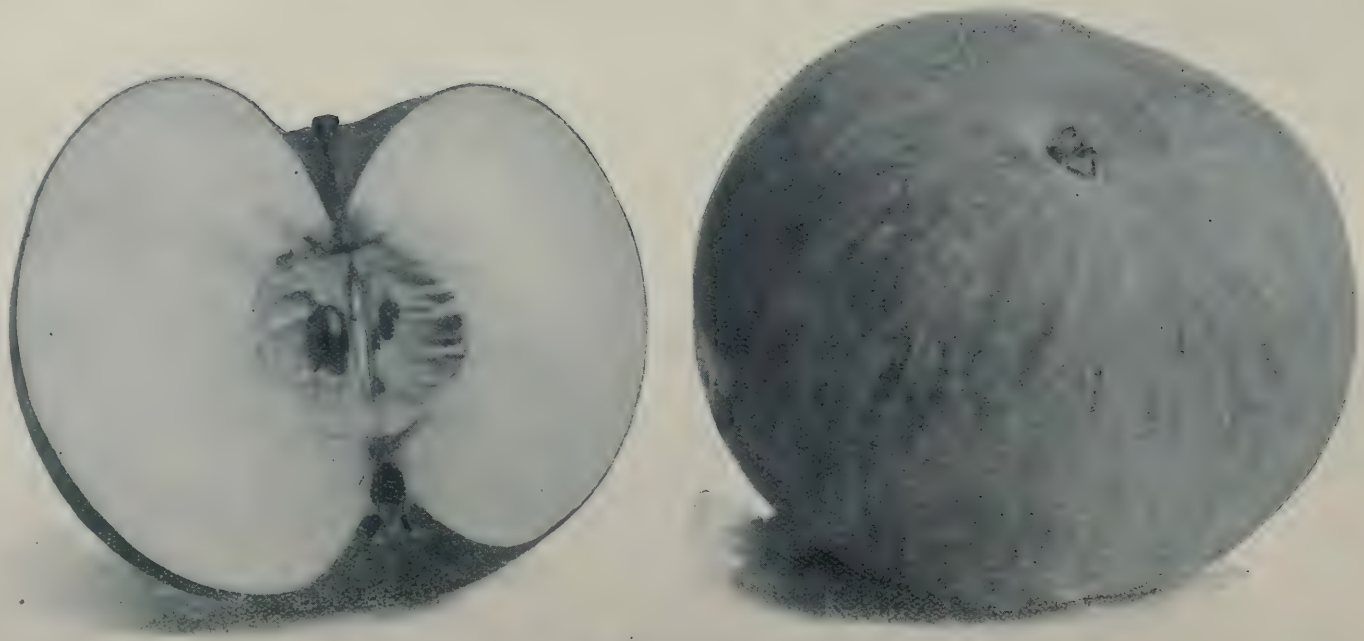


Fig. 2722. The Saint Lawrence.

The Canadian Horticulturist

FEBRUARY, 1904

VOLUME XXVII NUMBER 2

THE ST. LAWRENCE APPLE

THE St. Lawrence apple is not planted in the commercial orchards of Ontario bordering on lakes Ontario, Erie or Huron, being inferior to other autumn varieties of its season, but it is valued in orchards along the St. Lawrence river, and in parts of the province between latitudes 45 and 46. In the Niagara district it is considerably affected by scab and by codling moth.

ORIGIN: United States.

TREE: Hardy, vigorous and productive.

FRUIT: Large, often 2¾ x3¼; form, roundish oblate; color of skin, yellowish, with distinct stripes and splashes of carmine; dots, obscure; stem, ⅝ of an inch long, inserted in a large deep regular cavity; calyx, closed in a small deep basin.

FLESH: Color, white, slightly stained; texture, crisp, tender, juicy; flavor, vinous, slightly acid.

SEASON: September and October.

QUALITY: Dessert, good; cooking, very good.

VALUE: Home market, very good; foreign market, good.

ADAPTATION: Double starred at our Georgian Bay station; single starred at Burlington and Lake Huron stations.

Ottawa District: Mr. R. B. Whyte writes: I have not had much personal experience with the St. Lawrence apple. I long ago cut out my only tree as unprofitable, and that has been the general experience in this district. It is fairly hardy, and when we do get them they are very fine specimens, but unfortunately it is a very shy bearer.

The Lake Huron District: Mr. A. E. Sherrington writes: The St. Lawrence tree is vigorous and hardy here. The fruit is large, and fine for dessert, but too soft for shipping and subject to scab; therefore I cannot recommend it as a market apple.

East Central District: Mr. Elmer Lick, Oshawa, writes: The St. Lawrence is a fine dessert apple when free from scab. It is not suited for shipment to distant markets, but is fine for home use. To secure clean fruit is requires thorough spraying. It will never be a commercial apple in this section, because we have other varieties superior in many ways, which will succeed as well.

The St. Lawrence District: Mr. Harold Jones, of Maitland, writes: The St. Lawrence apple reaches its highest perfection in the St. Lawrence valley. The tree is hardy and vigorous, and early and abundant bearer, and the fruit is in season the first three weeks of September. This apple finds ready sale as a table apple and as a show apple for fruit stands, but it is not tart enough to be in demand as a cooking apple.

East Central District: Mr. Wm. Pickard, Newcastle, writes: The St. Lawrence apple is not largely grown in my district. It is apt to spot badly, and while a first-class dessert apple for home use, and is well thought of and in demand in Montreal, usually bringing top prices, it is by no means a good export apple. Under ordinary conditions it usually lands in somewhat bad condition, and consequently nett returns are anything but satisfactory.

Essex District: Mr, J. L. Killborn, Leamington, writes: St. Lawrence apple is not grown at all here, at least I have not seen a tree of it in this county, but believe there is an odd one. There are a few trees growing in Lambton county, but they are much affected with the apple scab.

Editorial Notes

PLANTING TIME is near at hand. The fruit grower, who intends to enlarge his fruit garden or his orchard, should employ these days of comparative leisure in studying the varieties best adapted to his purpose.

* * *

MAKE UP A LIST and write the most reliable Canadian nurseries for their best terms. By dealing direct, especially if the order is large, much lower prices will be accepted than by ordering through an agent, whose expenses and time must be paid for out of the sales.

* * *

FOR THE COMMERCIAL ORCHARD the novice in fruit growing should write the Department of Agriculture for the report of the Fruit Experiment Stations of Ontario, in which will be found reliable information with regard to the most profitable varieties and those best adapted for the various sections.

* * *

FOR THE HOME GARDEN quite a different list may be selected, for many of the best and highest flavored fruits for the table are not sufficiently productive to be worthy a place in the market garden. Inquiries with regard to varieties, their characteristics and their adaptability to the various sections of Ontario will be cheerfully answered in the columns of the Canadian Horticulturist.

* * *

WORTHLESS AND INFERIOR VARIETIES should be eradicated or top-grafted this spring. It costs as much to grow a cider apple as a good market variety; the one sells at 10 cents a bushel, the other at 50 cents.

* * *

TOP-GRAFTING is a simple operation, which every fruit grower should practice for himself. Professionals charge $3.00 a day for this work, and often make double that by charging three cents for every cion that grows. There is no mystery about it. The accompanying cuts will show the process without explanation.

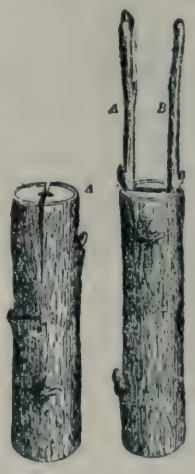


FIG. 2723 GRAFTING.

* * *

PRACTICE in grafting of course makes perfect, and the novice should first try his hand upon some waste branches. The great point is to make clear smooth cuts, and for this sharp tools and a steady hand

are essential. The inner bark, or cambium layer of cion and stock must exactly fit in each case, for here is the place at which the union takes place. Care must also be taken, in

FIG. 2724. TOP GRAFTING.

applying the wax, to exclude the air from the cleft, or the parts will dry up before growth begins.

* * *

CIONS may be cut any time during the winter when the wood is not frozen, and stored in the cellar. They should be packed in new sawdust, of which the natural moisture is quite sufficient to keep the wood plump and fresh until needed in spring.

* *

CUTTINGS of currants and gooseberries and grapes made in pruning may be also preserved in the same way as the cions until planting time, and if given a fair chance 90 per cent. of them will grow. Quinces also will grow from cuttings without much difficulty. Cut them five or six inches long, and plant to leave only one bud above the ground. The earth must be packed firmly about them.

* * *

PRUNING should be pushed forward every fine day in winter. Spring, with it draining and fencing and cleaning up and planting, is a busy time, and, if not attended to sooner, the pruning is apt to be neglected. Every tree in the orchard should be gone over with knife and shears at least once a year if the vigor of the remaining wood is to be maintained and good fruit to be harvested.

* * *

SPRAYING also is facilitated by careful pruning. A tree whose top is a brush heap, full of useless and half-dead wood, wastes much valuable material and time is money in this work. Every branch and every bud should exist for a purpose ; here is the ideal in an orchard tree, and the grower should try to attain as near to perfection as possible. If three treatments only with Bordeaux are to be applied. we would advise (1) just before leaf buds open, (2) as blossoms are falling, and (3) about a fortnight later.

* * *

THE USUAL FORMULA for Bordeaux is copper sulphate, 6 lbs.; lime, 4 lbs., and should be first diluted in water, at least a gallon to each pound, and then poured together and the balance of the water added. If not done so there will be flaky sediments which will clog the nozzle, and the spray will not be properly mixed. Possibly even this formula is too weak for the best results. Johnston, of Simcoe, used 12 lbs. of copper sulphate, 18 of lime, and 50 gallons of water, and had wonderful results last fall with his apple crop; but no doubt this was quite an extravagant quantity.

* * *

A SPRAYING RIG is a great convenience where much of this work must be done. A new power sprayer is being introduced, run by carbonic acid gas pressure, and we hope it may simplify the whole business. Where two or three growers unite in the purchase, a power machine of some kind would prove the greatest economy.

THE CANKER WORM is very troublesome in some parts, and must be fought persistently if the trees are to be saved from destruction. Sticky bandages applied in fall or spring will catch the wingless female moths as they climb the tree to deposit their eggs. Failing this, spraying with Paris green, 4 ounces to 40 gallons of water, when the young worms first appear on the young foliage, is effective. If neglected until they grow a little, they are much more difficult to kill.

* * *

BASKETS AND BOXES for the coming season's fruit crop should be laid in early. The popular basket for currants, gooseberries, cherries, choice peaches and choice pears is the 6 2-3 imperial quart basket holding about nine pounds of fruit, or nearly one peck. The 12 quart (imperial) is too large except for apples, pears, tomatoes and second size peaches. The accepted apple box is 10 x 11 x 20, holding about one bushel. These may be ordered in the flat, ready for nailing, which can be done by hand for less than one cent a box. Such boxes should be turned out at a regular box factory for about $10.00 a hundred.

* * *

A FINE COLLECTION for the forestry exhibit at St. Louis has just been forwarded the Department of Agriculture, Ottawa, by K. N. Grout, Grimsby, containing one walnut board, 21 inches x 12 ft. x 1 ft; one butternut board, 16 inches x 12 ft. x 1 in.; one sassafras board, 18 inches x 12 ft. x ¾ in.; one chestnut board, 21 inches x 8 ft. x 1 in.; one basswood board, 19 inches x 11 ft. x ¾ in.

Pack to Command Buyers

AFTER each season all fruit growers come to the same conclusion, viz., that more care in packing and in selecting would pay; but as often, when the new season comes around, is the same old way followed up. We believe the selection might well begin in the orchard, where only the larger and finer fruits are worth gathering. Poor, scabby and small specimens of pears, apples and peaches should never be touched except to thin the tree and give the better fruit a chance. It costs money to pick the rubbish, and money to cart it to the packing house, and money to assort it out, and money for baskets and boxes if it be shipped, and lessens the returns for good stock if sold in the same market.

R. A. Donald, of Toronto, writes our director Caston, saying he has just returned from the Northwest and has been amazed at the lack of forethought on the part of Ontario fruit growers and shippers. "Fruit from our province," says he, "is far better than that from any other place, but it will not sell in competition with stuff from other places until there is more style about its packing and more selection about the fruit. I would impress upon you strongly the necessity of packing your fruit in nice, small baskets, the fruit carefully selected and wrapped, in order to catch the best customers and make the largest sales. This year we had a glut of plums, but in other parts these were much sought after. Now had these been selected, wrapped and nicely packed in five pound baskets, they could have been shipped to the west in such a condition as to have positively forced themselves upon the attention of the consuming public.

Pruning the Norway Spruce

A MEMBER of the Waterloo Horticultural Society writes:

"I have seven Spruce trees in my lawn about eight years planted. I am thinking of pruning them into different shapes, such as square, round, diamond, three cornered, etc. Could you give me some pointers to guide me ?"

To bring evergreens into shapes, such as our correspondent desires, is a gradual work and cannot be done in one or two cuttings.

Indeed, for best results, trees seven years out cannot easily be manipulated, nor can they be cut back very severely without injury. We would advise our correspondent to begin with a light cutting about June 1st, topping back the tree to about the desired height, and prune with hedge shears the rest of the tree into the desired shape. This must not be done too severely, but with judgment, according to the size of the trees, and be continued annually until the young growth fills up all open spaces. In England the shaping of the yew is begun in the nurseries, while the trees are still quite small, and continued for many years, until the designs are perfected, when they are sold at a fancy price. We do not commend this shaping of trees unless in small yards and near the house, where natural forms would take up too much space.

The following clipping from the Agricultural Economist, of London, England, will give the view of topiary work taken in a country where it has been much practised in the past:

The day has long since passed when the clipping of shrubs and trees was considered the highest form of garden art, and nowadays one seldom sees the strange birds and beasts which once delighted the eyes of a former generation. Still there are one or two gardens to-day where topiary is practised, and in not a few of the old country pleasure grounds single examples are yet to be found. In the days of the Romans the formal garden flourished exceedingly, and Pliny tells us among other wonders in his Tusculan villa, of the forms of animals carved in box, and the topiary figures keeping guard over the strange scene. Almost every country adopted the fashion for a while, and the yews at Versailles, long since neglected, were once among the wonders of those gardens of folly. The introduction of topiary work into modern gardens cannot be desired for an instant, but one cannot help feeling thankful that a few good specimens still exist in various parts of England. Beautiful they cannot be, but undeniably quaint they certainly are, and serve to carry us back to the days of the ruff and farthingale, when gardens were appreciated more for their sentimental interest, and horticultural shows were unknown. One of the finest topiary gardens is at Levens Hall, Westmoreland, and here may be seen a cup and saucer, a judge's wig, a lion and crown, an umbrella, and many other devices neatly trimmed in living yew. At Elvaston there are several peacocks, a Chinese pagoda and a hen similarly treated, and in other gardens there are commoner forms, as trees clipped into pyramids, cones and globes. Visitors to Haddon Hall cannot fail to notice the clipped yews in the garden facing the picturesque lodge, one, a peacock, representing the Manners' crest, and the other a boar's head—though one would hardly realise it without being told—that of the Vernon family. These quaint emblems stand side by side, and remind one of the old story of Dorothy Vernon and her sweetheart, and the romantic union of the two families. In spite of its being a deformity and a travesty of nature, we should be sorry if the last of the old topiary figures were to be swept away into the memories of the past.

Much Pleased With an Ontario Fruit Farm

WE have an occasional inquiry from a young Englishman of means about the purchase of a fruit farm in Ontario, and in several instances our advice has resulted in a satisfactory settlement. We never advise the purchase of a large farm, because money would certainly be sunk in such a case, but rather one from fifteen to twenty-five acres in extent. Such a farm always pays proportionately best on the investment, because less money is wasted on ill-applied labor, and the most of the work can be done by the owner, who is thereby learning how best to manage his own affairs.

Just now we have a letter from a young man of this class, who, in accordance with our advice, purchased a well planted fruit farm near Lake Ontario, of about twenty-five acres in extent, with an old-fashioned farm house, good lawn, and old trees about it, and a well-fitted barn, stable, and poultry house, for about $6,500. He has now been one year on the place, and writes:

Sir: I must tell you that considering the glut that has been this year (1903), I have had a very satisfactory start. I had over 600 baskets of Early Richmond cherries, 3,500 baskets of plums, about 800 of peaches, and am now in my grapes, which I think will yield about three tons to the acre.

The home spot is lovely here, and I am more than satisfied, not only with this place in particular, but with farming in general.

Sour Cherries for Succession

THE same gentleman writes for advice in selecting varieties of sour cherries adapted to keep up a succession of fruit during the season.

"When my Early Richmond cherries," says he, "begin yielding anything like a crop, I shall be compelled to engage a great deal of help. I should like a sequence of sour cherries to justify my having a gang of pickers until raspberry time. I have about 140 Early Richmond, and about 40 May Duke, and should like to put out, say, 50 Montmorency and 50 Morello. I should like to hear what you have to say for these varieties, or if you would suggest any others."

There is no better sour cherry for profit to succeed the Early Richmond than the Montmorency. It hangs well on the tree until about August 1st, and always sells well; while the English Morello hangs still longer and is about the latest of market cherries. Of the Dukes, one or two should be mentioned and in particular the California Advance, which in season immediately succeeds the May Duke. It is probably identical with the Late Duke, and is not only a beautiful cherry but also a most abundant bearer. Another wonderfully fine cherry, as grown in sandy loam in our experimental plot, is the Reine Hortense, of which the season is also about the middle of July. Though of the Duke class, the tree is more vigorous and spreading, and the fruit is very large and luscious. The cherries are evenly distributed on the tree, and are so attractive in appearance that they command their own market.

Power Sprayers

WITH so many manufacturers working to meet the present demand among fruit growers for some satisfactory power sprayer, we hope for one both economical and effective before very long. Already we have a sprayer which is run by carbonic acid gas pressure, by which the power is estimated to cost only about 25 cents a barrel, and to give double the pressure of hand power. Gasoline engines are expensive, so that at present these are not likely to be used except by the professional sprayman, who may make it pay to apply spraying mixtures at a certain price per gallon. Another scheme, which is not new, is to have the pump run by a sprocket chain from the wagon wheel, but so far this has been imperfect, because the power ceased when the wheel stopped. In a new sprayer of this kind, recently invented in Illinois, there is an air chamber of half a barrel capacity in which the air is so compressed, as the wagon moves, that the power is kept up for some minutes after stopping. Surely this is hopeful progress.

Bark Lice

MR. JAMES SHAW, of Lakeport, has a young apple orchard seven years planted, which is growing nicely, but is affected already with the oyster shell bark louse. He writes:

"I have been advised to grease the trees, but before doing so I write for your advice. If grease or oil is recommended please state what kind is preferred and in what season it should be applied."

The oil that is most destructive to the bark louse is kerosene, which is at the same time injurious to the trees unless applied with great care. Painting with linseed oil is also said to be helpful.

We would advise our correspondent to scrape off all loose bark, and then about the 1st of June, when the young lice begin to move, wash thoroughly all parts affected with a strong solution of soft soap and washing soda; or spray thoroughly the trunk and branches with washing soda and water, ¾ of a pound to a pail of water.

Kniffen System of Grape Pruning

MR. W. C. WEBSTER, Stoney Creek, writes:

"In the November number of your journal I notice a reference to the Kniffen system of grape pruning. I would be very glad if you would explain it. I changed my vineyard to this system last year for convenience, labor

saving, and profit. We left from 50 to 90 buds on each vine; but this season my crop has proved a failure. I was attributing the failure to the system."

FIG. 2725. THE KNIFFEN SYSTEM.

The Kniffen system is a very simple one, and may be easily understood from the accompanying cuts. Instead of two arms on the bottom wire, as in the Renewal system, four arms are trained out horizontally, the lowest about three feet from the ground, and the higher about five or six feet. From these the young wood is allowed to hang, and of course little or no tying up is required. About one dozen buds on each arm will give as much fruit as the vine should produce.

One objection to this method is that the upper arms usually become stronger and seem to take near all the vigor, so that the lower ones give little fruit. This may be overcome in part by starting two uprights from the ground, one to furnish the arms on the first wire, the other those on the second.

FIG. 2726. THE KNIFFEN SYSTEM.

Many growers renew the whole arm each season, back to the upright, taking in its place the strongest branch, so that one or two cuts accomplish the work of much spurring.

The yield from Kniffen vines of strong growing varieties should be quite as large as from any other method. Concords should yield twenty to thirty pounds per vine on the average, but the Kniffen method is not well adapted to weak growing vines, such as the Wilder or Delaware.

For Canadian farmers, who have little time to spend in their vineyards, this system is very well; but for the gardener, or the vineyardist who has some time to devote to the work, the renewal system is no doubt the ideal thing; or for strong growers, like Concord, that American modification of it known as the Fuller system.

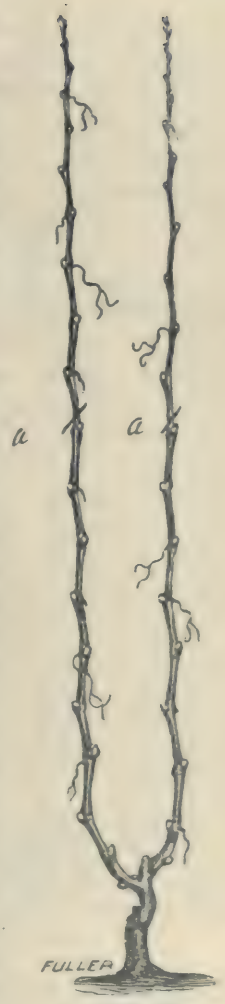


FIG 61

FIG. 2727. THE FULLER SYSTEM.

The Fuller System

This method is so well illustrated by the engravings that we scarcely need to describe it. The first year a single upright cane is allowed to grow; in the spring of the second year this is cut at about one foot from the ground and only two canes permitted to grow; and the third year these two canes are tied to the bottom wire and stopped at about

four feet in length. All spurs are cut back to one or two buds, from which the fruiting branches will grow out during the summer. For this method at least three wires are

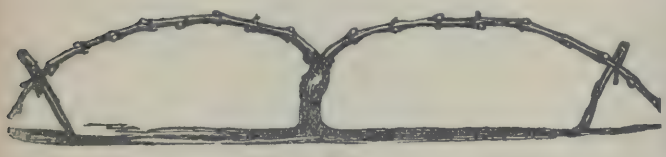


FIG. 62.

FIG. 2728. THE FULLER SYSTEM.

needed, so that the young wood may be tied up as it grows.

The renewal method differs from this only in that the uprights are each grown for two years before cutting down, and young canes are meanwhile grown in readiness to take their places. The number of these depends

FIG 63 (FULLER)

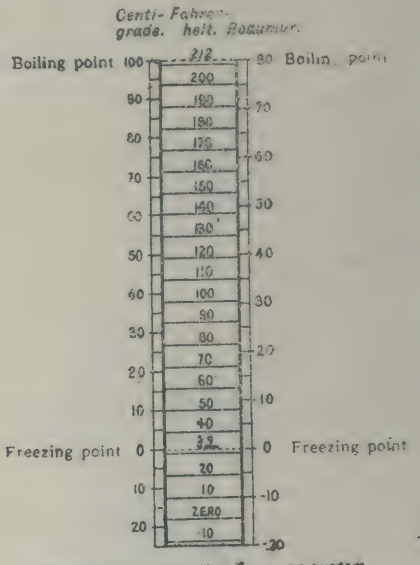
FIG. 2729. THE FULLER SYSTEM.

much on the variety and strength of the vine, and the fertility of the soil. The usual distance apart for the upright canes is from twelve to fifteen inches. On each of these upright canes there will be seven or eight fruiting buds.

Temperature Scales Compared

IN Canada and England such universal use is made of the thermometer invented by G. D. Fahrenheit, in which zero is 32 degrees below the freezing point, and 212 is the boiling point of water, that we are quite at sea when we read in a foreign journal of 10 degrees R or 10 degrees C, representing quite a different scale of graduations.

It seems to us that the Centigrade thermometer used in Europe, in which zero is the freezing point and 100 is the boiling point of water, is as much superior to the Fahrenheit thermometer as the decimal scale of counting money to the old English division into pounds, shillings and pence. There is another, the Reaumer scale, which is similar to the latter, only that 80 degrees is the boiling point instead of 100. During this season, when we are closely watching our thermometers to know the probable danger to our fruit crops, a diagram showing these different scales of temperature notations will interest our readers. We also attach formulæ for converting one system into another.



Formulæ for converting from one system to another

$$F = \frac{9C}{5} + 32$$

$$C = \frac{5(F - 32)}{9}$$

$$R = \frac{4(F - 32)}{9}$$

Storage Temperature

AS already stated in these pages, it has been definitely proved that the lower the degree of temperature at which a fruit can be held with safety the longer it can be kept in good condition. In Chicago our apples of 1892 were held until 1893 for the Columbia Exposition at 33 degrees, and fairly good results were obtained; but since that it has been found that apples will not freeze at a temperature of 31 degrees, and that if they can be stored at this degree, without danger of parts near the pipes going lower, they will keep in almost perfect condition. It is also found that at this temperature the fruit is less inclined to scald, rot or mould, while quality, aroma and flavor are fully as good as if kept at a higher temperature.

Spraying for Codling Moth

IT would seem that thorough spraying with some good arsenical poison is the most hopeful remedy yet discovered for codling moth. The most vigorous experimental work is in progress in Australia with arsenicals, and so far the results shown are that while untreated trees gave 42 per cent. of the apple affected, those sprayed with Paris green showed only 10 per cent. of the fruit infested, and those treated with the stock solution of Kedzie's arsenite of soda, 1 lb. in 40 gal. of lime water, had only 5 per cent. infested.

Peaches in Storage

LOISEAU, of Paris, France, has been experimenting with peaches in cold storage at a temperature of zero to 1 degree C. (or from 32 to 33 degrees F.) In one experiment he kept 600 peaches one month in good condition. Unfortunately he does not mention the kind. Those he had wrapped kept no longer than those unwrapped.

One striking feature of his experiment was that peaches submitted to cold storage kept longer after removal than those picked fresh from the trees. The latter could not be exposed for sale more than three days at the most without deteriorating, while the refrigerated peaches preserved a good appearance for six or seven days after removal.

This is contrary to the general view, but if true, it is a most valuable point learned, and adds to the importance of a cold storage to every fruit section.

For Prevention of Plum and Cherry Rot

EARLY attention is wise for the prevention of plum and cherry rot. During mild days in winter, when the trees are being pruned into shape, the mummy fruit should be removed and burned, as it contains spores for the propagation of the fungus. In early spring, before the leaves appear, the trees may be sprayed with a solution of copper sulphate, 1 lb. in 25 gallons of water; and before the blossoms open, with bordeaux made with 6 lbs of copper sulphate, 4 lbs. of good quick lime, and 40 gallons of water. This treatment may be repeated as soon as the blossom falls.

Asparagus Pays

A BADLY planted and poorly cultivated asparagus bed is not only unprofitable, but an actual expense to the owner. A half acre at Grimsby, planted thinly many years ago on very dry sand, has never paid for the plants; and now comes the profitless task of rooting them out. In contrast with this, Doan, of Illinois, said at the last meeting of the State Society that he had grown asparagus for the Chicago market for twenty years, and that a net return of $150 to $200 an acre could reasonably be expected from it. In setting, he plows furrows 5 or 6 feet apart and 6 or 7 inches deep, then he sets the plants two feet apart in the furrows and covers with a few inches

of soil. As the plants grow during the season the furrows are gradually filled up by cultivation. When winter sets in the asparagus is cut off and given a good covering of manure, which can be worked into the ground the following season.

Plans for Successful Fruit Growing

CEASE GROWING SECOND CLASS FRUIT.

NOT only should our Ontario fruit growers cease shipping poor grades of fruit, but they should cease to grow it. It is a constant loss, because the trees occupy valuable space in the orchard, takes valuable time to gather and pack; uses costly packages; costs as much as the best fruit for transportation and sale; brings down the reputation of the grower in the market, and lessens the net returns for his fruit crop.

It is good advice, and often given, to make some disposal of the poor fruit at home; but a better plan is to *cease growing it altogether.* How shall this be done? Well, in some degree the following hints will help bring it about:

I. Change your varieties. There are a few kinds of apples that grow uniform in size and color, and are not much subject to scab. Select these for your district and top-graft all poor varieties accordingly; four or five kinds of pears succeed and will bear distant shipment, substitute them for the small kinds or the natural fruit; a few varieties of cherries and plums are not subject to rot, and some grapes are scarcely ever affected with mildew. Choose by all means such varieties.

II. Spray, Cultivate and Manure in the best manner. Details of these are so often written up that we pass them with the simple mention.

III. Prune with an eye to reduce the amount of weak and crowded wood over the entire tree, beginning from the exterior and working inwards. This work must be done with more judgment and deliberation than has been customary. The amount of fruit bearing surface will be thus decreased, leaving, of course, the best and most vigorous fruit buds. This will leave less wood to be sprayed, less fruit to gather, and better fruit for market. No saw should be necessary in an orchard that is pruned annually with pruning shears, but unfortunately this work is frightfully neglected even in some of our finest orchards.

IV. Gather only the best fruit. With labor so high priced, and fruit so low priced, it does not pay to waste time. We have been in the habit of gathering all our apples, pears, cherries, plums, peaches, etc., in baskets and boxes; of bringing them all to the packing house and turning them out on packing tables for sorting. In many cases we believe this could be done economically in the orchard, leaving the scrubs on the trees. In case of apples, these could afterwards be shaken down for cider.

V. Make successive pickings. In peaches, successive pickings are customary already because of the successive ripening of the various samples; but there are good arguments for extending the practice to many other fruits if a reputation for a uniform high grade is desired. Red Astrachan apples, for example, do not color up all at once, but beginning with the first week in August, they continue during the whole month. At Maplehurst we have an orchard of over one hundred trees in full bearing, and get the best results by going over the trees four or five times, the pickers selecting each time those in the pink of perfection for fancy shipment. Were these all gathered at any one time, either a large portion would be very immature in case of early gathering, or an equally large portion would be over ripe and fallen, in case of late gathering. This same method we have adopted with our Bartlett pears, making our first pickings about the first of September and the last about the 20th of the month.

VI. Uniformity of Maturity and Size. The shipper of fancy stock, who indeed is the successful fruit farmer of the near future, must not only see that he grows and ships good stock, but in the same package he should have uniformity in size, color and maturity. Whether to some extent this can be more economically done in the picking or only in the packing will be for each individual to decide, but where a grower is handling his own stock and knows how things should be, we think much can be done in gathering to save after handling.

Powell, of the U. S. Department of Agriculture, says on this subject of "Cold Storage":

It is not possible to secure a uniform degree of maturity and size when all the apples on a tree are picked at one time, as fruit in different stages of growth is mixed together on the same tree. The apples differ in size and maturity in relation to their position, the upper outer branches producing the large, highly colored and early ripening fruit, while the apples on the side branches and the shaded interior branches ripen later. Greater uniformity in these respects is approached by proper pruning and by other cultural methods, but the greatest uniformity can be attained when, like the peach or the pear, the apple tree is picked over several times, taking the fruit in each picking that approaches the desired standard size and maturity.

Summer apples, like the Yellow Transparent, Astrachan, and Williams, are usually picked in this manner, and fall varieties, like Twenty Ounce, Oldenburg, and Wealthy, are sometimes treated similarly. In recent years a few growers of winter apples have adopted the plan for the late varieties, with he result that the size, color and ripeness of a larger proportion of the fruit are more uniform.

Immediate Storage. The keeping quality of all kinds of fruit is seriously injured by the common methods of handling. Peaches and plums are gathered in baskets and set down for hours in the hot sun before shipment; pears and apples are sometimes left in piles in the orchard, heating and ripening, or held in a warm packing house, with no cool storage to prevent the progress of ripening. No wonder, after such conditions previous to shipment, that we should hear much of slacks and wastes in our export apple shipments; or that peaches, plums and pears should reach Winnipeg in a disgraceful condition.

Powell's remarks under this head are also pertinent. He says:

The removal of an apple from the tree hastens its ripening. As soon as the growth is stopped by picking, the fruit matures more rapidly than it does when growing on the tree and maturing at the same time. The rapidity of ripening increases as the temperature rises, and is checked by a low temperature. It appears to vary with the degree of maturity at which the fruit is picked, the less mature apples seeming to reach the end of their life as quickly or even sooner than the more mature fruit. It varies with the conditions of growth, the abnormally large fruit from young trees or fruit which has been overgrown from other causes ripening and deteriorating very rapidly. It differs with the nature of the variety, those sorts with a short life history, like the summer and fall varieties, or like the early winter apples, such as Rhode Island Greening, Yellow Bellflower, or Grimes Golden, progressing more rapidly than the long-keeping varieties like Roxbury, Swaar, or Baldwin.

Any condition in the management of the fruit that causes it to ripen after it is picked brings it just so much nearer the end of its life. whether it is stored in common storage or in cold storage, while treatment that checks the ripening to the greatest possible degree prolongs it.

The keeping quality of a great deal of fruit is seriously injured by delays between the orchard and the storage house. This is especially true in hot weather and in fruit that comes from sections where the autumn months are usually hot. If the apples are exposed to the sun in piles in the orchard, or are kept in closed buildings where the hot, humid air can not easily be removed from the pile, if transportation is delayed because care for shipment can not be secured promptly, or if the fruit is detained in transit or at the terminal point in tight cars which soon become charged with hot moist air the ripening progresses rapidly and the apples may already be near the point of deterioration or may even have commenced to deteriorate from scald, or mellowness, or decay when the storage house is reached.

On the contrary, the weather may be cool during a similar period of delay and no serious injury result to the keeping quality, or the ripening may be checked in hot weather bq shipping the fruit in refrigerator cars to a distant storage house.

The fungus diseases of the fruit, such as the apple scab (Fusiciadium dendriticub), and the pink mold (Cephalothecium roseum) which grows upon the scab, the blue mold (Penicillium glaucum) which causes the common, soft, brown rot, the black rot (Sphaeropsis malorum) and the bitter rot (Glaeosporium fructigenum) develop very fast if the fruit becomes heated after picking. The conditions already enumerated which

cause the fruit to ripen quickly during the delay between the orchard and the storage house are also most favorable to the development of fruit diseases. It is therefore of the greatest importance that the fruit be saored immediately after picking, if the weather is warm, in order to insure it against the unusual development of the fungous rots.

Grafting the Cherry on the Plum

A SUBSCRIBER wants to know whether it would be possible and profitable to top-graft cherries on his plum trees. It is not strange he should ask the question in view of the immense crop of plums, and the wretched prices offered for them in 1903; yet we believe that if it were possible for plum growers to change all their plums to cherries it would be a very unwise procedure, based on experience of a single season. A few years ago everybody wanted to root out his apple trees, and now everybody wants to plant them. Four or five years ago raspberries were unprofitable, now they are counted one of the most profitable of small fruit crops.

We do not think, however, that it is possible to successfully top-work the cherry on plum stock. We have never tried it ourselves, but we know of no data encouraging it. Macoun, horticulturist C. E. F., Ottawa, gives his opinion adversely. He says:

"In my experience and to my knowledge it is not possible to successfully top-graft the cultivated cherry on the plum. If a union takes place at all it will only be temporary and the result quite unsatisfactory."

Peerless, Star and Trenton Apples

MR. R. T. FRASER, of Vernon, B.C., asks for a description of these three varieties. It is a little premature possibly for us to attempt a complete description of these apples because they have not yet been widely tested in Ontario, but we give a few points concerning each:

PEERLESS: A fall apple of about the same season as Colvert, as grown at our Bay of Quinte Station; size, large, even, oblate; color, greenish, splashed with dull red; cavity, wide; stem, short; skin, clean; good for dessert or cooking, and should export well; originated in Minnesota, and said to be a seedling of Duchess.

STAR: Originated in New Jersey; a good summer apple, ripening in August and keeping until November; color, yellowish pale green; flavor, pleasant sub-acid; tree productive; at our East Central Station a twenty-two year old tree yielded 16 bushels of apples.

TRENTON: Origin, by the late P. C. Dempsey, of Trenton, Ont, a cross between Golden Russet and Spy; fruit 2 x 2⅜ inches in size; form, round oblate; color, yellow, covered with red, splashed and streaked with dark red, and with numerous white dots; flesh, yellowish, tender, crisp, pleasant, sub-acid; season, autumn.

New York State Fruit Growers

APPLE GROWING PAYS.

AT the recent meeting of the Western New York Horticultural Society at Rochester a very interesting address was given by Dr. Bailey, of Cornell University, on New York State as an apple growing region. He showed that this state had been the leading state in the production of apples, but that in the last decade there had been a falling off in apple production here, while in many other states, particularly the western, there had been very rapid increase. No doubt the explanation was found in the greater attention given to plums, peaches, grapes and small fruits, but he urged that it was a mistake to neglect the planting of apple orchards. These other fruits were now meeting glutted markets, while for the apple new markets were constantly opening up. True, it needs courage to plant an apple orchard, knowing that twenty years perhaps will elapse before any adequate returns can

be expected, but it will pay the patient planter.

ADAPTATION AN IMPORTANT STUDY.

Bowstead, of the Bureau of Soils, Washington pointed out three elements of success or failure in fruit growing: (1) Suitable climatic conditions; (2) suitable soil; and (3) suitable market conditions. In the study of the second, which belonged to his department, he found that the great peach sections were of sandy soil, and the great apple sections were of clay soils, as for example the peach sections of Michigan and the apple section of Wayne County, New York State. This agreed with the universal experience of growers, and advice to young planters could therefore be based upon it. The great point is to define clearly just what is a clay soil and what a sandy soil, so that such advice would be really intelligible.

BALDWIN AND BEN DAVIS.

Bickworth championed these two varieties as being the best commercial apples in the world at the present time. He would not be governed by sentiment, and even if Ben Davis were denounced for inferior quality, he would grow it. "We want to grow," he said, "whatever apple brings us most money, and no apple made better returns than Ben Davis.

Van Deman stoutly condemned Ben Davis. "I hate," said he, "to hear Ben Davis spoken of as a desirable kind to plant. Gano belongs to the same family, and has the same old delicious sawdust flavor; it is not one whit better; it is just redder. Black Ben Davis is just another kit out of the same litter, still if I were going to plant any one of this wretched family it would be the Black Ben Davis."

DUST SPRAY.

Prof. Gray, of Cornell University, has been experimenting with dust spray made of copper sulphate, water and lime, dried and powdered. This was applied in the early morning by means of dust guns, and seemed to answer an excellent purpose, the dust completely covering every portion of the tree. The cost was a trifle greater than the liquid. He thought that for small trees, for small fruits, and for cherry and plum rot, the dust spray was the more effective.

BOX OR BARREL.

One question aroused much interest. It was, What shall be the future package for apples and pears, the box or the barrel? Hooker, of Rochester, advocated the barrel, because easier to pack, an important point in these days of high priced labor. One grower had used bushel crates in his orchard for gathering, had stored them in these crates and finally used them as market packages in Buffalo with excellent results. They commanded ready sale, and were cheaper than barrels. Mr. George F. Powell had packed 1,000 boxes of Jonathans in boxes, and was holding them in cold storage for special sale as fancy dessert apples. Ellwanger & Barry have for years used a small box holding about a half bushel, and packed in it fancy pears and fancy apples for a special trade. Anjou pears were wrapped in thin paper on which was stamped in crimson the monogram, E. & B., and sold to a New York buyer, delivered, at $2.00 a box of only 45 pears. Of course every pear was strictly fancy. Winter Niles, Columbia, Josephine and Clairgeau had been tried in the same way, but none, of course equalled Anjou. Jonathan apples were put up in the same style and sold in New York at this season (mid-winter) for $1.50 a box.

A committee was appointed to consider the box question and bring in a report, and we suggested the advisability of using a box uniform with that agreed on for Ontario which measures 10 x 11 x 20 inches inside measure.

A YEAR OF INSECT PLAGUES.

THE APHIS.

Slingerland, of Cornell, pronounced 1903 a year of special insect infestation of orchards. In New York State the apple aphis had been more destructive than ever before. One orchardist declared that his apple crop had actually been reduced one-half by the lice, which had attacked both the leaves and the fruit. The latter had been small, blemished and ill shapen in consequence. Nurserymen had been great sufferers, one of them stating that his loss from the plant lice in 1903 had not been less than $5,000.00.

"Will they trouble us again in 1904?" asked some one. "Nobody can tell with certainty," said the professor, "but if this winter you can find their little black shining eggs on the branches, you may look for the lice, unless the cold rains of spring, or their natural enemies, the lady beetles, should combine in their destruction. The best remedy is whale oil soap, 1 lb. to 7 gallons of water, applied in spring, before the eggs hatch out. Kerosene emulsion is also effective, but a little more troublesome of preparation."

PEAR PSYLLA.

Unfortunately this insect has become a more constant enemy of late, and is very numerous some seasons, frequently doing a great deal of damage. Pear growers must therefore be prepared to fight the psylla, if not every year, at least every second or third. The simplest remedy is whale oil soap, 1 lb. in 5 gallons of water, as a winter or early spring wash, to kill the old psyllas, which is now hiding in the crevices. The kerosene emulsion is also an effective remedy.

PLUM CURCULIO.

Most plum growers still rely upon jarring for combating the curculio, but it is much more costly than spraying with arsenites and possibly not more effective. The reason of failure in the past appears to lie in the weak poison used, for it has been demonstrated that stronger mixtures are quite effective. Professor Slingerland advised the use of arsenate of lead or disporene, of which the strength is less variable. This is not yet on common sale, but can be purchased wholesale in New York City in 100 pound lots at about 10 cents a pound, and since it requires about twice the quantity as of Paris green, it is a little more expensive, but this is more than offset by its greater efficiency. This poison has been found not only excellent in destroying curculio, but also codling moth, and has the advantage of remaining in suspension ten times as long as Paris green.

ROSE CHAFER.

This insect has been very troublesome in special districts, where the ground is sandy and favorable for its transformation. In some cases it not only attacks the rose plants, but also fruit trees and even strawberry beds, and does great injury. In the latter case early spring cultivation will destroy the chafer as it is transforming in the ground, and in the former, spraying with disparene is recommended.

LEAF HOPPERS.

Leaf hoppers (or thrips) have been very troublesome, particularly on rose and grape vine leaves, but during the last year or two there seems to be a decrease in their numbers, which we hope may continue. The most effective mechanical method of destroying them seems to be large wooden trays on which tangle foot fly paper is attached, carried along the sides of the vines or bushes, and by these the hoppers are caught when purposely disturbed. Spraying with a solution of whale oil soap about July 1st seems also to be effective, but must be thoroughly applied, for it will kill only those it hits.

THE NEW SOIL GOSPEL.

Vanslyke, of Cornell, called attention to Bulletin 22, recently issued by the Bureau of Soils, in which it is claimed that nearly all soils contain sufficient plant food for all purposes and for all time to come; that, therefore, the addition of fertilizers is not so much required as such physical conditions as shall make available the plant food already in the soil. The great object of the orchardist, therefore, should be to so control the soil moisture by careful cultivation and otherwise, that it shall be in a condition to nourish the plant. It is claimed that the effect of such cultivation is more effective in the growth and fruitfulness of orchards than the application of fertilizers.

Prof. Vanslyke was not prepared to accept this teaching, neither was Mr. Jordan, director of Geneva Exper. Station. It was entirely too revolutionary.

PRIZES FOR BEST FRUIT FARMS.

Over ten years ago Mr. Geo. B. Ellwanger had made a gift to the society of $1,000, the interest to be used in giving prizes for the best kept orchards in New York State. The committee reported having visited the orchards in competition, and had decided upon giving the first prize of $40 to Mr. Woodward Hopkins, near Lewiston, and the second of $20 to Mr. N. Cook, of South Byron, N. Y.

Mr. Hopkins' case was remarkable. He already had a bearing orchard, when he bought this 100-acre farm to grow grain and cattle upon and to furnish manure for his fruit farm. He paid $36 an acre for it. Then wishing to interest his son in fruit growing and farming, he had set out on it 16,000 pear trees. Last year these had given him 35,000 baskets of fruit, and had been the means of convincing the son that farming and fruit growing was the best business in which he could engage.

FIG. 2730. W. A. MCKINNON.

Mr. W. A. McKinnon, B. A., Toronto University, Graduate-in-law at Osgoode Hall, Chief of the Fruit Division, Dominion Department of Agriculture, has in charge the working out of the Fruit Marks Act. He was at our meeting at Leamington, where his experience gained by a prolonged stay among the great apple markets of Great Britain was of especial service in our discussions. In an excellent paper recently contributed by him to the Farmers' Advocate, London, he gives the following:

Three Essential Conditions of Success in Fruit Growing

(1) Such orchard management as will yield the maximum of clean fruit of good quality, and such handling as will reduce to a minimum the damage to mature fruit.

(2) Such a system of storage as will enable us to tide over short seasons of congestion, and to slightly lengthen the selling season for tender fruits.

(3) Such packing as will enable us to put up our fruit in handsome and attractive form, and to offer it for sale in uniform substantial packages, of known capacity, each package containing only one grade of fruit.

Packing Apples in Boxes

THE fruit packers of Ontario using boxes are creating a very unfavorable impression in the Old Country by the use of an excessive amount of excelsior. The trade in Great Britain entirely misunderstand the object of this excelsior. They take is for granted that it is put in the cases for the purpose of economising in the quantity of fruit. As a matter of fact, our Ontario packers have not yet acquired the art of packing an apple box properly. It is quite possible, with almost any size of apple, to fill the box recommended by the Ontario, Quebec and British Columbia Fruit Growers' Associations (10 x 11 x 20 inches, inside measurement) with the use of very little, if any, packing material; and those who are using boxes largely will do well, during the remainder of the season, to practice box packing. The box has come to stay, and those who first acquire skill in its use will reap the reward. Let us have numerous private experiments in the art of packing a box of apples properly, as well as public demonstrations by competent packers at Farmers' Institutes and Horticultural meetings.—*Dept. of Agriculture, Ottawa.*

* * *

THE MICHIGAN HORTICULTURAL SOCIETY will hold a two days' meeting at Port Huron on the 3rd and 4th of March, with the idea of making it international in character. Mr. L. B. Rice asks that we extend a hearty invitation to all members of the Ontario Fruit Growers' Association to attend. He says further: "The meeting will open at 9.30 standard time on our side, and again at 1.30. At 4 o'clock there will be an extra meeting for the school children. If Prof. Hutt can bring several of his students with him we shall try and have some from the Michigan Agricultural College give them a reception at 7 p. m."

* * *

DR. JAMES MILLS, President of the O. A. C., Guelph, has been appointed a member of the Railway Commission, of which the other members are Mr. Bernier and the Hon. A. S. Blair, the latter being chairman. Mr. Blair is an extremely able lawyer, and has had much to do with the formation of the present railway act which comes in force on the 1st of February. Farmers and fruit growers alike all applaud the selection of Dr. Mills as one who knows their needs and has the deepest interest in their prosperity.

* * *

MR. G. C. CREELMAN has been appointed successor to Dr. Mills as president of the Ontario Agricultural College. We know of no one in the province better fitted to take up the responsibilities of this very important position. He has excellent natural abilities united with a long course of technical education, besides having had experience in college work while professor of biology in the State Agricultural and Mechanical College of Mississippi. He has a wonderful aptitude in managing men and affairs, and all who know him will unite in favor of his appointment to this important position.

* * *

MUCH HAS BEEN SAID in favor of thinning fruit on apple trees. President T. B. Wilson, of the New York Fruit Growers' Association, says: "When there is a general crop of apples and the crop, or set, is very full, so that the chance for small fruit is very great and widespread over the country, I think it would pay to thin to such an extent as to insure good-sized fruit. Aside from this I do not think it would pay, only for the protection of the tree."

A PEACH COUNTRY

MORE NOTES OF THE LEAMINGTON MEETING.

MR. W. W. HILLBORN, FRUIT EXPERIMENTER IN ESSEX; ALSO ORCHARDIST AND GARDENER.

THE home of our fruit experimenter, Mr. W. W. Hillborn, is situated just outside the town of Leamington, on a somewhat elevated location, and in the midst of peach orchards which extend as far as the eye can reach. Very few trees remain of those planted previous to the great February "freeze" of five years ago, but the new orchards are now coming into bearing, and in future the output of peaches from Essex must be reckoned with in our already overstocked markets..

After testing about one hundred and fifty kinds of peaches, Mr. Hillborn gives the following list as in his opinion the most desirable for commercial purposes, in order of ripening, viz.: Yellow St. John, Garfield, Early Crawford, Fitzgerald, Engol Mammoth, New Prolific, Elberta, Bronson, Kalamazoo, Late Crawford, Smock, Banner and Salway.

The Longhurst he would not plant, the Bronson and the Kalamazoo being much better; and in this our Niagara district growers will agree with him, for most of us have too many of this variety, which often grows small in size and is unattractive in appearance. The Banner is a local variety and quite a favorite in Essex.

We asked about two varieties which are great favorites with us in our own experimental plot, viz., Steven's Rareripe and Champion. While admitting them to be among the very best, he had omitted them from his list simply because they were white fleshed. Now in England the white flesh kinds are the favorites for dessert; we believe the same is true everywhere, and that the popularity of the Early Crawford for canning purposes explains the preference for the yellow color in America.

In this we are supported by Taft, of Michigan, who said that in his state some of the best white varieties are being specially grown for a fancy trade. He would not favor, however, any of those ripening earlier than the season of the St. John. We quite agree with the professor with regard to most of the early varieties, but would except a new variety, the Greensboro, a large white fleshed variety of fairly good quality, which we consider very valuable for home use or for a near market.

Hillborn has had excellent success with the lime and sulphur treatment for scale. which had established itself in his orchard before he was aware of it. One thorough treatment, just before the buds opened, was so effective that he has not since been able to find a live scale. In applying he is careful to spray on the windward side, finishing on the other side when the wind changes. With three lines of hose he applies five barrels of the mixture per day, one man being always at the steam cooker preparing the mixture.

Mr. W. A. McKinnon said that the experiments conducted by his department went to show that $350 should provide a power spraying outfit, with which one

skilled man, with such assistance as he found necessary, could cover about 4,000 trees for the season. He had used three lines of hose, and always took care to have one man go behind to spray underneath the branches. He had used both gasoline and steam power.

Mr. W. H. Owen, of Catawba Island, Ohio, was making use of compressed air as power for spraying, and found it neither disagreeable nor expensive. The apparatus is so arranged that one man does all, operating twelve nozzles from his platform at the back of the wagon. A large co-operative power sprayer of this kind would cost about $600, and a man could spray twenty acres of peach trees in one day. Anyone owning such an outfit would have a good income making and applying a spraying mixture at a charge of 3 cents a gallon.

THE OUTLOOK FOR APPLE GROWING IN ONTARIO

Sir: I remember with considerable satisfaction and pleasure the very profitable and well attended meeting of the Fruit Growers' Association of Ontario last November at Leamington, at which I was pleased to be present during the whole session.

Great Progress.

From the time I used to meet with your association with much more regularity than I do now, along back in the seventies, I clearly saw at this late meeting that onward steps had been taken and that surprising progress had been made. Deeper and more vital questions relating to the great questions of transportation and its requirements, packages and packing stations. experiment stations and their work, horticultural topics. etc. For all of these various items, indicating large internal growth, we are most truly pleased, and do hope that this may be still more evident all over this young and promising country. Now, while we say that we are glad of the many small family apple orchards already planted and bearing all over this country, scarcely a small farm holding being without them, and even the vegetable garden having its moiety of apple trees close packed in between the rows and beds, yet we are satisfied that for commercial purposes this method of procedure is not good or profitable to men. Why ? because commercially it is too small a business and not sufficient to attract the attention of the buyers or the markets. And here let me explain what is the commercial outlook that I am trying to lay before your readers and the reasons for the depression at present ruling or pervading the apple growing business in Ontario.

Plant Apple Trees.

I am about to make this proposition that before we can make apple growing as a business success we must plant apple trees on a much larger scale and grow more apples and better ones, and so make a life business of it and not merely plant a few trees for pastime or pleasure as so many of us are and have been doing. Everybody is now having a small quantity just for family use, you know, but nobody taking proper care of them or tries to make them satisfactory in doing their best, so if they get any fruit it is all right, and if they get none it is all the same, because, you know, we have not much care or interest or money in them anyway. Now, in direct contrast to all this old kind of thing, we have made up our minds, after very long, deep and protracted consideration of this whole matter, to venture to propose another plan of working. It is to plant apple orchards on a large scale suited for the commercial requirements of the time and the markets. These may be planted wherever the soil and climatic conditions are known to be favorable, two or three in a township or half a dozen in a county, or a very attractive one near a great populous centre. The sorts to plant must be selected after a thorough knowledge of the varieties and the demands of the distant markets, and these grown to the highest state of perfection that the sorts are capable of, and the question of market is absolutely sure and profitable returns will assuredly follow. Now, providing the conditions of soil, climate, moisture and capital are all right, which is very often the case in Ontario, after proper selection and thorough preparation of soil, cleaning, culture, fencing, etc., planting is then in order, and these trees may be of good thrifty stock not over 2 or 3 years from the bud. Plant of these not less than a thousand trees for first output, and these not too many varieties, not more than four good standard sorts in the lot; but some would prefer only one or two. Then as these grow, and the capital and help will assure you, go on planting until the full number of five thousand or one hundred acres are reached and in good thriving condition. A few successful orchards in any certain locality of our country after they begin to come into bearing would secure an immense

notice from fruit men generally and be very attractive to the buyers, and the markets of the old world, where there is such an unsatisfied demand for our beautiful sound Canadian apples.

Central Packing House.

We would further recommend that these apples, as well as others grown in a neighborhood, should pass through the hands of the Central Packing Station to receive proper packing, careful handling and just and true assorting. There is no system so vital to the best interests of fruit as this modern system of station packing, and for the interests of all who are concerned it must have the most thorough and immediate attention. These stations are being planted so generally over the best fruit regions of the United States, and even in Canada, that all the particulars regarding them, their rules of working, their expense of management, their officers and systems of organization may be all easily learned by corresponding freely with them. It is essential to set these in full operation in this country. These apples, so packed and shipped away from a central packing station and labelled with a well known designation that carries value with it, and can be relied upon by the buyers to take one or five hundred or a thousand or more boxes without questioning would shortly establish a market for all the fruit that can be offered or gathered.

Management.

Now, to successfully accomplish the working of this method of large commercial apple orchards there must in the first place be the best of mature and well tested judgment and a thoroughly trained competent experience on the part of the management. There must be no trifling in this case or merely experimenting processes. They must know what to do and how to do it. Everybody cannot do it. Of course they cannot; if they could there would be nothing for anybody in it. But it is here, as in all other business, that are successful. It is simply a question of competence, wide experience and thorough business ability derived from much actual work in the orchard in the head of the directorate. In the man to do this kind of work there must be better training in head and heart, deeper study of all things related to the orchard, and the nature of his business as to conditions of soil and surroundings, etc., a general broader up-to-date intelligence on the subject of apple growing than has ordinarily come to the practical business. I may say here that this method of producing apples is not merely dreamy, but has bright rays of encouragement in it, for are we not even now having several attempts in this line of work? In our agricultural schools and horticultural colleges there are numbers of hopeful and competent young men being educated and trained for this special line of introductory apple growing as their special life-work in this country. It may not, therefore, be a long time before it may be seen that this fine promising country may be dotted over from the rivers to the lakes with large fine beautiful orchards of apples such as will gladden the heart of the buyers in the old world and enrich the patient toilers in this. A few days ago I was corresponding with one of those young men now being educated and trained at our far-famed Ontario Agricultural College at Guelph with regard to a trip lately made by him as an enquiry tour to old Georgia, U. S., and mostly their peach regions, so successful in their shipments last summer. The following ideas were freely communicated for my information and bearing on the points at hand. I dedicate them to the apple growers of this country.

Peach Growing in South America.

"Although I consider," said he, "the Georgia peach region to be most promising and most successful regions, especially that around Fort Palley, in Houston County, where peaches are being raised in enormous quantities, and of the finest sizes and qualities, especially in the case of the Elbertas, and where a man might enter into a business in the largest desirable extent with the fullest assurances of success on account of the most perfect adaptability of both soil and climatic conditions to produce the finest desirable samples of fruit that would take a full market anywhere, and where labor and packing material are both so plentiful and so cheap, yet I am not going to settle for my fortunes in Georgia. I have had my attention directed to other fields farther away, but better suited for my designs in my future life work and lying within the borders of the Argentine Republic, South America. Here, as you know, the climatic conditions are the reverse of ours, so that when it is summertime there it is wintertime here. So for this reason a large company of capitalists are going to plant a very large area in peaches for the old London and New York markets. They will clear and plant 1,000 acres at first at least, and they want me to take charge of the work and to superintend the progress of affairs to success. When no fresh fruit can be had from the north we intend to pack and ship our South American peaches into these markets, and expect good results. As the first plantation is nearing maturity, and the demand for peaches good, we intend going on in our planting until some five or ten thousand trees are out." Now, the whole of this was a shining revelation to me, and seemed at once a feasible and splendid business undertaking. This is the kind of enterprise we want applied to the business of apple growing in this country that is at once so safe and as well adapted to the growth and production of the most beautiful, good keeping and flavorful apples. In this way the business must be made a specialty, when planting, working, cleaning, pruning and spraying must at all times and in all cases receive their proper and fullest proportional treatment through the full worklife of the trees. So the enthusiast apple grower will take a deep intelligent pride in his work and the results will abundantly attest the

wisdom of the management, he will give his fuller attention to details and thus obtain the highest awards of his race for his products in any market to which he may consign them.

Disposal of Fruit.

But about the method of disposal of the fruit. Oh, this is a vital and primary question. I would particularly emphasize the statements of my friend about the Georgia methods of marketing their peaches. The peach growers all support the Central Packing Stations located in every peach centre, and these are under the direction of good efficient boards of management. Here the sorting, packing, labelling, etc., of all the fruit of the district is properly done, and the accounts kept for each grower. There on a uniform scale as to sizes, qualities and grades the whole carload can be safely bought by the inspection or label of one basket to the full amount of the car or 5,000 baskets, because all are exactly alike, which could never be done when every man packs and sells for himself. This is the system that commends itself to our best judgment here also as apple growers. Under no other system that we can conceive of could this possibly be done either for apples or any other fruit on a large scale. This then is an outline, and remember an outline only of the methods and managements of Canadian apple growing on a large commercial basis, and we are sure that in the no distant times of this country's products in apple or peach growing this or something like it will be practically carried out among us properly filled in with the details required for success. If not, why not ? Who will propose and enact something that is preferable ? That apples will be grown in this country and grown on a larger scale than ever heretofore thought of we are certain. It only remains for us to fill in the details and supply the positive requirements of success for this country to become shortly studded over with those large flourishing commercial apple orchards from shore to shore and all through the centre of our land. Hoping, as the present writer does, though now reached his three score years and ten in the service, that he may see this enlarged system carried out over our lands. If this is the case, or ever to be the case, he will be satisfied that his labors in this behalf have not been in vain. For what he sees to-day he does not regret the feeble efforts made in the past years of his experience in this line by himself and his friends, the Fruit Growers' Association of Ontario. Yours, B. GOTT.

Strathroy, Ont., Jan. 20th,, 1904.

A CHEAP ICE HOUSE

CHOOSE a well-drained spot convenient to the house and higher than the surrounding ground.

Set corner posts of good size and almost any desired height, then put in the intervening posts at intervals of 2 or 3 feet. On the outside board up with rough slabs, old boards, or anything that is at hand. On the inside do the same. Fll the intervening space with sawdust. Inside and opposite the posts place a 2 x 4 studding and repeat the operation of boarding from the inside. Fill this intervening space with sawdust. This is usually sufficient, but if desired another row of studding may be supplied and the space filled with sawdust.

An outside wall is thus provided which will prevent changes of temperature. The doors must be so arranged as to be perfectly air tight, being also provided with air spaces, or spaces filled with sawdust. In putting on the roof, observe the same precautions. Provide a ventilator at the top. If these precautions and suggestions are followed, and the drainage has been satisfactorily provided for, there will be no trouble in keeping the ice.

Put in the ice on a cold, crisp day, so that the surface of the cakes will not be moist. Fill up to the top of the ice house, then cover with 18 inches or 2 feet of sawdust. Close up the house and the ice will keep nicely until wanted for use. Begin taking out from the top, always opening the ice house in the early morning, while the air is cool and there is little difference between the outside and inside temperatures.

THE WEALTHY APPLE

BY W. F. MACOUN, C. E. F., OTTAWA

THE Wealthy apple was originated by Peter M. Gideon, Excelsior, Minn., about 1861, from seed which he obtained from Maine. Mr. Gideon thought that it was grown from crab seed, but many doubt this. It is thought by some good authorities that there is Fameuse blood in the Wealthy, and certainly it has some of the characteristics of that variety. Owing to its hardiness, beauty, productiveness and quality the Wealthy has justly become one of the most popular varieties for planting in the colder apple growing districts. The tree will begin to bear two or three years after planting and will produce a barrel of fruit per tree six years after planting. The tree is a spreading grower, but on account of the great crops which are borne, it grows slowly after coming into bearing. This variety is very useful as a filler, as it will produce profitable crops before some varieties begin to bear. At the Experimental Farm good success has been obtained by planting these trees in a block ten by ten feet apart each way, the object being to obtain a large quantity of fruit from the land in a short time and thin out in good season. Planted in 1896, these trees had averaged up to 1903 a net return per acre above all expenses of $121.38. This year was an off year, but the trees are in fine condition and the promise is for a heavy crop next year. The Wealthy apple exports well and keeps splendidly in cold storage. Sent in ordinary ventilated hold without cold storage, they sold in Glasgow in 1902 at 6 shillings and 9 pence per box of 128 apples. The Wealthy has three faults: First, owing to its heavy bearing habit the fruit becomes rather small after a few years, but by thorough cultivation and thinning the fruit can be kept up to good marketable size. Second, the fruit drops badly, but owing to the heavy crop there is usually a good quantity of fruit left on the tree, and for the local market our experience has been that good fallen Wealthys sell as well as picked ones. as the higher color of the fallen fruit renders them more attractive. Third, the trunk is subject to sunscald and canker. The former, and perhaps the latter, can be prevented to a large extent by protecting the trunk.

FIG. 2731. WEALTHY APPLES AT C.E.F., OTTAWA, PLANTED 10 X 10 ft. APART IN SPRING 1896. PHOTO TAKEN IN 1902. SOME TREES BEARING OVER A BARREL EACH.

On the whole, the Wealthy is one of the most profitable apples for the more northerly sections.

Fruit Reports from Our Directors.

PRESENTED AT THE LEAMINGTON MEETING OF OUR ASSOCIATION.

Stormont, Dundas, Glengarry, Prescott and Cornwall.

(Division No. 1.)

Represented by A. D. Harkness, Iroquois, Ont.

With Mr. Lick I attended a meeting at Iroquois on April 7th ; Morrisburg, April 23rd, and at Lancaster on April 24th. At these meetings the process of making the Bordeaux mixture was explained and demonstrated, as well as a practical demonstration on pruning in orchards. In this District there are so

Few Engaged in Fruit Growing

from a commercial standpoint that it is a difficult matter to organize an association, and then it is more difficult to make use of it after it is organized. If, in a district like this, where there is not much fruit grown, some arrangement could be made to have meetings under the auspices of the Farmers' Institute, for addresses and discussion on fruit growing and demonstrating, on pruning and spraying by persons who are acquainted with the local conditions, I think much benefit might be derived from it, and the Farmers' Institute would be benefited as well.

In this district I think there are only three townships that put in grain in any quantity at all and these border on the St. Lawrence river. In Glengarry there is scarcely any grain ever grown for local use. Prescott I do not know anything about as yet. Stormont, in the township of Osnabrook, there is considerable, but scarcely any in the rest of the county. Dundas, in Williamsburg and Matilda, there is considerable, but not much in the other townships. The apples that do best with us are of the Fameuse class, and can be successfully grown for commercial purposes, but from my observations I do not think it will pay us to try to grow the later winter varieties except for local use.

Plums.

Plums we cannot expect to grow successfully for about four years in every five the first buds will be destroyed. I am trying the American class of plums. Last spring I planted 8 Stoddard, 8 Hawkeye, 8 Wolfe, and I got from Dunlop, of Outremont, 4 Raynes, 2 Mountain, and 2 Mount Royal to try them in our district.

Small fruits, strawberries, currants, gooseberries and raspberries can be grown successfully.

Frontenac, Kingston, Leeds, Grenville and Brockville.

(Division No. 3.)

Represented by Harold Jones, Maitland.

HAROLD JONES.

For a long time it was thought that the St. Lawrence Valley would never become a fruit growing district. Mr. Jones, however, has demonstrated to the contrary. He is one of the men who has made the apple known as the "McIntosh Red" famous throughout the world. On his farm is located one of the Provincial Fruit Experiment Stations, and through this Mr. Jones has for years demonstrated to the farmers throughout the Valley the benefits to be derived from clean cultivation, proper fertilization and persistent spraying. For years past Mr. Jones has had large crops of potatoes, as a result of spraying, while his neighbors even on adjoining fields, have suffered sometimes to the extent of three-quarters of their crop from the prevalence of rot.

Since making my last report to this Association I have done some little work in the interests of the Society, and I hope of benefit to the fruit growers of my division.

In December last I attended the annual meeting of the Quebec Pomological and Fruit Growers, held at Waterloo, as a delegate from this society. I find that there is more interest being taken in fruit matters from year to year. The attendance was very fair at all the sessions, and the subjects were well discussed by the public, and the fruit display would have been a credit to many of our fruit growing centres in Ontario.

In January I attended twelve meetings of the Farmers' Institute in my division and gave practical talks on fruit growing, taking up the questions of varieties and giving illustrations in budding, grafting, pruning, etc., and in preparing mixtures for spraying, which created much interest and led to animated discussions at most places. These talks eventually led to quite a large correspondence with parties asking for hints and advice on location of orchards, drainage, varieties, etc., as well as many samples of fruit by mail for identification. I replied to all questions where possible, in as plain a manner as I could, and I hope it has started many in the right direction.

The experimental fruit plot on my own farm affords an ocular demonstration of the success or failure of many varieties of fruit to many visitors during the summer.

Apple Scab.

The unusually dry weather that prevailed during part of April, May, and the first half of June passed the fruit (apples) over the critical part of the season when the most damage is caused by spot, and although we had almost continuous rain since June 16th, the fruit is absolutely clean, even on orchards that were not sprayed at all. This fact gave me an opportunity of pointing out to many the vital importance of spraying early and often in seasons of normal rainfall in the spring months, for this season has shown us that if the spot can be kept absolutely in check until the middle of June our crop is absolutely safe.

In past seasons I have found that trees that I had sprayed every week from the bursting of the bud to the first of June and then stopped were freer from spot than those not sprayed so frequently and continued until the first of August. This point needs further careful study, for we must admit that we do not know all about spraying yet.

Profitable Apples and Pears.

Fameuse, McIntosh, and varieties of that family are the standards for my division, and are the most profitable to grow from a commercial standpoint. For a later keeper we have nothing yet more profitable than Scott's Winter, Golden Russet, and possibly the Canada Red. Milwaukee gives promise of being profitable, being of large size, but it has a tendency to drop during September gales, although not nearly as badly as Pewaukee, which makes that otherwise profitable apple very unsatisfactory to grow. We can grow Spys and Baldwins top grafted, also Kings, but why not leave these varieties to the lake counties, where they excel us every time, and make more and more of a specialty of the Fameuse groups, for we are in the great apple belt of the St. Lawrence valley, where the fruit grows to perfection and will keep in ordinary cellars until February.

Among the pears we have Clapp's Favorite, Flemish Beauty, and Ritson, three pears that do well in this division, and are of good quality. Intending planters would do well to stick to these varieties until other pears of good quality are found to grow successfully by the stations, for so many of the so-called "ironclads" are so poor in quality that there is very little use in planting either for home use or market.

Satisfactory Plums.

Plums for the domestic class are of very little value in this division. The most successful or promising are Lombard, Gueii, Yellow Egg, Glass Seedling, but even these will only come through the winter without injury to the fruit buds about two years out of five. Japans are also proving unsatisfactory, being tender in fruit bud. Red June, Burbank, Ogon and Abundance will bear in seasons that are favorable for the Lombard.

The most satisfactory plums are those of the American type, and Wild Goose, Whittaker, Milton, Hammer, Forest Rose, Col. Wilder, Hawkeye, Cherry, Stoddard being the most successful of this class. These plums are fair for cooking but are of very little value where European plums can be grown. However, they will be a boon to those in the eastern counties where grown in gardens for family use.

Among the cherries the Orel and Ostheim give splendid results, bearing good crops of fair sized cherries. Montmorency is particularly tender in bud, only having a scattered crop. May Duke is tender in bud, also Reine Hortense.

Hastings, Addington, Lennox and Prince Edward Counties.

(Division No. 4.)

Represented by W. H. Dempsey.

The heavy frost of last December did considerable injury to the buds of the more tender varieties of fruit, hence the crop of the more choice varieties of plums and cherries was very light, also some of the apples were injured. The early spring being cool and wet, no caterpillars showing and seeding time at hand, the farmers took it for an excuse for not spraying as usual. If the season had not been unfavorable for the development of fungous diseases, the growers would have suffered a great loss. As it was, the fruit was quite free from fungous and insects. In some sections a few pear trees suffered from blight. The pear tree Psylla also made its appearance to quite an extent in a few orchards, and the trees were so badly infested that they were noticeable for some distance.

Apple Growing County.

The year has been a favorable one for all engaged in the fruit. business in this district Fair crops of clean, well colored good sized apples brought fairly good prices in the orchard. Pickers, packers and coopers received high wages for their services, the only drawback in the business was the scarcity of help and of barrels.

The County of Prince Edward has again proved itself as being one of the best apple producing counties in the Dominion, producing between two and three hundred thousand barrels of export apples this season, as well as a large quantity of Damson plums. Some of the growers had from 100 to 400 bushels of plums growing, you might say wild, in fence corners, and sold them from 75 cents to $1.00 to the buyers.

There are not many pears grown in the county, but what trees there were was loaded, especially of the Flemish Beauty variety, which

were particularly nice and sold for good prices. There are also large quantities of small fruit grown, most of them are sold to canning factories and local markets at fair prices. In the counties of Hastings, Lennox and Addington apples have not been grown to any great extent until within the last ten or fifteen years, when large orchards have been planted principally in those townships lying along the water fronts. Many have fruited well this year. The apple growers in this district find the fruit houses a decided advantage to them for storing their fruit, particularly the cold storage in Trenton, where the fruit is cooled down and held at a low temperature for but a trifle more cost than the ordinary storage.

Several orchard meetings were held in the early part of the season, and were fairly well attended gy growers eager for information on fruit storage. Mr. Elmer Lick, of Oshawa, gave practical talks on spraying and pruning, which were very much appreciated, also Mr. F. J. Barker spoke on the advantage of thinning fruit.

Durham, Northumberland, Peterborough and Victoria.

(Division No. 5.)

Represented by Wm. Rickard, Newcastle.

As director for Division No. 5, I beg to report that the local Fruit Growers' Associations formerly organized at Bowmanville, Newcastle and Orono, in Durham County, have not been active or in good working order during the past year. For a time there was considerable interest taken, especially by the membership in Bowmanvilie, where a number of interesting and profitable meetings were held. Among other things that received prominence was that of building a cold storage fruit house, but up to the present no action has been taken along this line.

Outlook for Apple Growing.

In speaking of fruit culture in Northumberland and Durham, I might properly confine myself mainly to apples. There are a few who have, to a limited extent, gone into growing pears and plums and small fruits with some measure of success, but the king of all fruits, the apple, has been and is now receiving by far the greater part of the attention and work of the fruit growers of these united counties, and in my opinion, very properly so; for when we consider that the fruit townships bordering on the north shore of Lake Ontario possess the natural condition of soil and climate for the growing of apples that cannot be surpassed on the North American continent, and when we further consider the almost unlimited prospective markets for this health-giving fruit, both in the east across the great Atlantic to the teeming millions of Europe, and also in our great and glorious west (I say our glorious west, for it is ours, the heritage of our fathers), in the near future destined to be the home of many millions of well-to-do people, surprising the world in the production of the greatest of cereals, wheat, making them prosperous to such a degree that while, generally speaking, they will not be able to grow fruits, they will have the purchasing power to buy. We say that as far as we are able to look into the future, the prospects for growing apples in this favored district along the north shore of Lake Ontario, are, to say the least, fairly good, and a considerable number of our most intelligent and progressive land owners are acting on this outlook and planting quite largely young orchards of apple trees of very considerable extent. As an illustration, I may say we find in the second concession of the Township of Clarke, in less than one and a half square miles, two hundred acres in apple orchards, some of them just coming into bearing, and as an example of the success that can be made in apple growing here, by giving it careful intelligent management, let me say that I picked and packed this season from thirty-five Ben Davis trees just ten years planted, one hundred barrels of apples.

Another Side.

Notwithstanding the above facts, there is, I am somewhat sorry to say, another side to the question of apple growing in this district. Some of our farmers having orchards are disposed to neglect them, allowing the trees to take their chances. If the orchard receives any attention at all it is after everything else is done. The inevitable result is that we have too much poor fruit, and not enough of real good fruit, and herein lies the success or failure in the growing and marketing of apples. No better work can be done than to educate every man having an orchard up to a careful intelligent management of the same. This will result in success, while neglect and inattention will result in failure, and this will apply not only to the individual but to a certain extent to the great and imporant apple business of the country.

The apple crop in this section for the present year has been very abundant and of excellent quality. As near as I am able to ascertain, the shipments at the various railway stations up to the present time considerably exceed anything heretofore, unless it might possibly be in 1896, the year with a bumper crop. Summing up the shipments this season, together with what is put in store, I believe I am safe in saying that Northumberland and Durham have produced this year somewhere about three hundred thousand barrels. But this great and important industry in this country is only in its infancy. In after years it bids fair to double and treble in this favored locality—the fruit townships of Northumberland and Durham.

A Suggestion.

I would suggest that in connection with Farmers' Institute meetings the cultivation of fruit be dealt with by giving instruction in the best methods of fruit apple culture.

York, Ontario, Peel, Cardwell and City of Toronto.

(Division No. 6.)

Represented by Elmer Lick, Oshawa.

ELMER LICK.

Mr. Lick makes a specialty of fruit culture. He has had charge of a large orchard on his own place for a number of years, and when the Fruit Marks Act was passed by the Dominion Government he was one of the first inspectors to be appointed by the Dominion Department of Agriculture. In this capacity he has had an opportunity of looking into all matters pertaining to the fruit industry, from the cultivation of the soil to the disposing of the products. He, therefore, speaks with authority, and can view the question both from the producers' and commercial standpoint.

In making this report I think that the most important statement that can be made is that Division No. 6 has never produced as much fruit of as great value in any previous year. The apple crop, the great staple fruit in most of this division, was large and exceedingly fine in quality. The abundant rain fall of the past three years gave the trees vigor, the favorable weather during blossoming favored fertilization, the conditions favorable to the development foscab did not exist to any great extent. The insect pests were not serious, and to finish up with, the weather during the picking and packing season was the best since 1892.

Waste of Apples.

Even with all these favorable conditions, and none of them could be better, thousands of barrels of finest apples have been wasted. Several reasons have led to this, first the scarcity of labor and its high price; second, the greatest difficulty on record in securing barrels. The apple packers, in order to secure help, have had to pay up to 20 cents per hour for picking and packing, and in order to secure barrels have had to pay up to 75 cents. The cost of picking, packing, and the barrel has thus been exceptionally high, averaging some times about $1.00 per barrel, and in many cases even more. Under the usual conditions of heavy shipments week by week, the price in the English markets would have fallen to such an extent that the apples would have scarcely paid for picking. Many dealers have made money, few have had very much profit during part of the season. If the English fruit crop had been heavy the larger portion of the apples in our section might have better stayed on the trees. Nevertheless the fact remains that apples of standard varieties, picked, packed and shipped in most careful and economical way have netted from $1.25 to $1.50 per barrel for the apples on the tree. This, of course, is only where barrels had been stored at 35 cents and where picking and packing went on at the same time.

Co-operation Needed.

Many sections have sent in complaints that there was no dealer buying there. Careful inquiry has shown that in such cases orchards were small, varieties numerous, consequently the cost of packing was high and a very great difficulty in securing cars of two or three varieties at one time. If the small orchardist is to get highest price for his apples there must be more co-operation either between the producers or between the producers or between the producer and dealer. Barrels must be stored early and in a clean place, producer must take more responsibility in regard to picking, packing and drawing to market.

Plums a Glut.

In some parts of the district plums were scarcely worth picking. In common with other sections large quantities of plums were allowed to rot for want of a market. Yet we believe that if the producer could have known where to send them that fair prices could have been obeained. The distribution of our fruit crop is of vital importance. At several of the Farmers' Institute meetings fruit growing was discussed, fruit institutes were held in several sections, and quite a lively interest shown.

In his orchard, near Oshawa, last year, Mr. Lick had a large crop of fine apples—about 2,100 barrels in all, of No. 1 and No. 2 fruit. He also handled 700 barrels outside of his orchard, packing most of them himself. Altogether Mr. Lick marketed over 1,600 barrels and 3,200 boxes of apples. For fall shipped previous to November 1st satisfactory returns have been received. Most of the fruit went to Machester.

Lincoln, Niagara, Welland, Haldimand and Monk.

(Division No. 8.)

Represented by E. Morris, Fonthill.

I have to report that the fruit crop this season has been the most abundant of any year in the history of the Niagara District. Following a large crop of last year, under ordinary circumstances we should have expected only a moderate yield of the large fruits, but owing to freedom from storms during May all blossoms developed fruit, particularly plums, peaches and cherries, the former being more than the market could take.

Plum Pulp.

In view of the possibility of another such glut, I would like to draw the attention of the society to the fact that there are thousands of tons of plums being shipped annually from Germany and other European countries, to England in the form of pulp to be manufactured into jam. I

would suggest that steps be taken to ask for a grant from the Government to experiment along this line.

Various Fruits.

The peaches sold at very low prices, but the crop being large, it proved fairly remunerative to the growers. The cherries were a very large crop and sold proportionately higher in the market than any other fruit. The pears were a medium crop and prices were fair. Apples, above the average crop and unusually free from scab and other fungus diseases, proved a very profitable crop, and added considerably to the bank account of the farmers. All small fruits were the greatest crop known, although there was great loss from too much rain during picking season for strawberries and raspberries. However, the market price was good. The township of Pelham easily led in quantity of small fruit grown. One grower, Mr. Albert Railton, shipped 375 tons and realized a net profit of $3,000.

Orchard Meetings.

I recommended last year that we should have some orchard meetings in the central and southern portion of the Niagara district. There has never been a meeting of that kind held in the section in Ontario where such meetings are most needed and where the people would highly appreciate them. I therefore request that meetings be held in that section.

Elgin, Brant, Oxford and Norfolk.

(District No. 9.)

Represented by J. S. Scarf, Woodstock.

The year which has just closed has not been quite as favorable to the fruit growers in this district as was anticipated in the earlier part of the spring. The season opened with great promises of a very large crop of fruit, and just about the time the buds were bursting there came a cold wave with heavy rains, lasting for several days. This, no doubt, was the cause of a light set of the apples; notwithstanding this, the apple crop was a fairly good one. In many places the quality was exceptionally fine, but in a number of places the apples were attacked by a scab. The Northern Spy was a good sample and a good crop; the Greenings rather light crop, and the Baldwins were good. Owing to the very great scarcity of barrels and boxes a large quantity of the apples were not picked, but were left on the trees and ground to rot.

The pear crop was a little under the average, and in many places badly affected with the scab, the Kiefer and Bartlett being badly stung. The plums were a very heavy crop, but rotted badly. Cherries were a light crop, the buds in the spring failed to come out well, but the quality was very good. The raspberries did well, and were a heavy crop, as also were the black berries, but the peaches were not as good as last year.

The Woodstock Horticultural Society.

With regard to our local Horticultural Society in the city of Woodstock, it is doing good work, continuing on the same lines as last year in distributing shrubs, plants, bulbs and trees to its members, also to the scholars of the public schools. During the year the society distributed to the members 90 Hydrangea (Paniculata grandiflora) as premiums from the Fruit Growers' Association and from the local society, 185 rose bushes. 32 peach trees, 33 cherry trees, 66 currant bushes, 575 Gladioli bulbs, 100 Cannas, 46 Caladiums and 2,826 tulip bulbs. To the scholars of the schools 300 geraniums and 64 boxes of annuals, also tulips to the children, who made an exhibit of flowers at the fall exhibition of the Horticultural Society.

Monthly Meetings.

The society continues to hold regular monthly meetings, and some very interesting papers are read at some of these meetings from the members. The visit we had in April from Mr. T. H. Race, of Mitchell, who was sent by this association, was very much appreciated by those who heard him. Mr. Race's address was on "Roses and Their Culture," and was of unusual interest to the large number who turned out to hear him. It was said to be the best lecture on horticulture that the society had ever listened to.

Perth, Middlesex and City of London.

(Division No. 11.)

Represented by T. H. Race, Mitchell.

T. H. RACE,

A Director of the O.F.G.A.; Chairman of the Floricultural Section of our Annual Meeting at Leamington, Ont.

The only work worthy of notice done in this district during the year just passed has been in connection with the horticultural societies. There has been very little orchard planting done, not enough, in my opinion, in view of what the near future promises in the way of a demand for good fruit. Generally speaking, there has been little spraying done, and a few varieties subject to spot have been badly disfigured. On the whole there has been a fair crop of winter apples, especially Spys, and they

have been comparatively clean and well developed.

The Fruit Marks Act.

It is gratifying to note that a respect for the Fruit Marks Act is becoming more and more manifest, and its requirements have been well observed this fall. But while the farmers are accepting the Act and approving its claims and purposes, they are, with a few exceptions, not applying themselves to the requirements of their orchards to turn the Act to good account. Those few exceptions, however, when the orchard has been properly cared for, are sure in time to exemplify the influences of the schoolmaster in the community. A few farmers I know of have made their orchards pay this fall, and their example and experience must gradually work upon their neighbors. If not, then our labor is all in vain.

The London Society.

In horticultural work the success of the London society has been most marked. At the Western Fair, held in that city in September, the special floral display made by that society was one of the greatest attractions in the horticultural building. All the annuals shown in that splendid exhibit were grown from seed distributed by the society, and the flowers were contributed by the members gratuitously. The general admiration of the public seemed to be a sufficient reward for the labor expended.

In the city of Stratford they have also a live and active society, which I regret to say is not in affiliation with us. They are doing excellent work in giving prizes for the best kept lawn and the best flower and vegetable garden. In the latter part of August they held a flower show, which was a splendid success, and left them a considerable surplus in cash after paying prizes and all expenses.

The Mitchell Horticultural Society.

In my own town, Mitchell, we have a society with a membership of about one hundred. Of course I consider it the best and most enthusiastic in the province. Any meeting held under its auspices is sure to have a crowded house. Last spring we distributed nearly thirty dollars' worth of plants and gladioli bulbs, and this fall about sixty dollars' worth of Parrot tulips and mixed hyacinths. The work is showing itself very conspicuous throughout the town, in school grounds, church grounds, and especially about the homes. The infection, in fact, is being caught by many of the farmers, and the result is telling in the surroundings of many of the best farm homes.

Essex, Kent and Lambton.

(Division No. 12.)

Represented by J. L. Hilborn, Leamington.

In the district which I represent there are a number of horticultural societies, and they are doing a very good work, but there is not as much interest manifested in them as there should be.

The greatest difficulty appears to be that many fruit growers and horticulturists are not sufficiently alive to the advantages to be gained by diligently attending meetings and co-operating for the advancement of our calling.

The Transportation Grievance.

One of the most importance meetings held in this district was called at Kingsville in March for the purpose of discussing transportation grievance. There was a large gathering of fruit shippers, Mr. M. K. Cowan, M. P., occupied the chair and displayed considerable interest in the welfare of the shippers. The express companies were represented by their road agents, also by Mr. Sparling, superintendent of the Canadian company. As a result of this meeting we get much better service this season, but undoubtedly the express rate on fruit is more than it should be, especially to certain points.

The Mersea Agricultural Society hold their fall fair at Leamington and manifest considerable interest in the fruit department, and annually have a fine display of fruits, in which much interest is taken and considerable information is gained by the different exhibitors, and the public generally, in regard to the best varieties to grow, and in the proper naming of odd and new varieties. I have for several years assisted in the judging of this department and correcting names where wrong.

The Fruit Crop.

The fruit crop of 1903 was a bountiful one, but prices as a rule were rather low. Strawberries were an immense crop, especially in Lambton county. Plums were a great crop everywhere, and so cheap that some of them were never gathered, as there seemed to be no sale for them. It appears to be that there should be sale for so good a fruit as the plum if properly canned or jammed and put upon the proper market. Perhaps there is room for the O. F. G. A. to do some good work along this line of investigating this matter and encouraging canners to handle more plums when they become so cheap, and thereby prevent a total glut in our markets.

Peaches as a rule were a heavy crop, the exception being when varieties that are susceptible to the curl leaf were not properly sprayed. and Crawford varieties that were growing on soils too sandy to be well adapted for them. Owing to so much wet weather during the ripening period of peaches and plums there was considerable waste from rot. The flavor and keeping quality of peaches especially was much affected by the same cause.

Apples yielded well, but the fruit was much affected by the ravages of scab and codling moth. There should be much more attention given to the spraying of our apple orchards. Much good work is being done by the Farmers' Institute in the way of impressing growers with the importance of more thorough pruning and spraying of their orchards. but there is still room for much missionary work along those lines.

(Division No. 13.)

Represented by G. C. Caston, Craighurst.

G. C. CASTON.

Mr. Caston is a past president of the Ontario Fruit Growers' Association, and has charge of the Fruit Experiment Station in Simcoe county. He is one of the oldest institute workers, and is well ond favorably known in this capacity thraughout the province. In addi ion to the subject of fruit, Mr. Caston is prepaaed to discuss cold storage and transportation; also the marketing of farm products. He has probably done as much as any other man to introduce hardy fruits suitable to our northern climate.

In the district comprising this division the present year has been a favorable one for most varieties of fruit. Strawberries, although somewhat injured by drought, were a fairly good crop. Raspberries, although not so good as in 1902, were yet an average crop.

Two Good Blackberries.

The blackberry has not been grown commercially in our district, with the exception of my own plantation I know of none being grown in a commercial way, and the reason is not far to seek. Nursery agents have been selling varieties that were not suited to the climatic conditions of the district; they would grow well in summer but would lose nearly all the bearing wood during the winter, and consequently this fruit has been neglected. After a trial of some twenty varieties I have found two that exactly suit our conditions, the Eldorado and Agawam, both of good size and quality, and produce magnificent crops, so that I have found them to be one of the most profitable of the small fruits.

Various Fruits.

The cherries were the next thing to a failure this year, and plums, though plentiful and correspondingly cheap in the district near and around the Georgian Bay, were further inland only a very moderate yield. Pears, which are not extensively grown as yet, were very good in quality. Apples were good in both quality and quantity. That universal favorite, the Northern Spy, was more than usually prolific this year and the quality very fine. One mistake that has been made in our district is the planting of too many fall apples and of too many varieties. Realizing this, planters are now confining their planting to winter varieties only, and only a few varieties of these. Some, acting on advice from experienced growers, are taking the better plan of planting Talman Sweets and other hardy varieties for the purpose of top-grafting them with the best winter sorts for commercial purposes, the chief of which is the Spy.

An increased interest is being taken in the growing of orchard fruits. As an instance of this, the Board of Trade of the town of Orillia asked the Department of Agriculture to send some one to investigate the capabilities of that immediate locality for the production of commercial apples. As a result of this action Messrs. Creelman and McNeill were sent to that place in the early part of the summer, and I believe their investigation proved that the best commercial varieties can be grown successfully there, more especially by the system of top-grafting on hardy stock.

My district is a very large one, reaching from Lake Simcoe to the Lake of the Woods, larger than all the others put together, and I am pleased to say that apples are being grown away north of that district of Algoma where it was not thought possible a few years ago. On Joseph's and Manitoulin Islands, and in several places on the northern shore of Lake Huron, and even on Lake Superior, some of the hardy varieties are being grown. And I believe that there is a strip of country reaching the whole length of the north shore of Lake Huron, to Garden River, a few miles wide, that will grow a great many of the varieties that we are growing in the more southerly sections.

As a result of a meeting held in Toronto of the Board of Control and Experimenters, a move has been made toward having more experiments in fruit growing conducted in New Ontario, chiefly in the Temiscaming country.

Orchard Meetings.

I attended a number of orchard meetings in our district, in company with Mr. McNeill, in April. There were properly advertised, were well attended, and an interest manifested that will, I hope, lead to some practical and profitable results. Mr. McNeill explained very fully at each meeting the commercia l side of fruit growing, and we hope that co-operative marketing will be one of the features of the future of the industry in our section.

News from Fruit Growers' Associations, Horticultural and Civic Improvement Societies

Good Work Being Done by Fruit Growers of the Niagara Peninsula

WE are indebted to our worthy president, Mr. W. H. Bunting, for the following notes:

Several meetings of a somewhat important character in connection with the Niagara Peninsula United Fruit Growers' Association have been held during the past few weeks, and matters of considerable interest, not only to local fruit growers, but also to the fruit trade generally throughout the province have been discussed. The election of officers took place on December 18th, resulting in the appointment of Mr. C. M. Honsberger, of Jordan, as president, and Mr. C. E. Fisher, of St. Catharines, County Registrar, as secretary, with an executive committee representing the various localities throughout the entire district. This association has been active in the past as an organization closely identified with every movement that gave promise of results beneficial to the fruit industry, and has succeeded in accomplishing some good work.

The meetings on December 18th and January 2nd, 1904, which were largely attended, were chiefly devoted to a discussion of the present condition of the San Jose infestation, and the best methods to be adopted during the next few months in order to destroy the present infestation and prevent further spread. The San Jose scale committees reported satisfactory work in many orchards with the lime and sulphur treatment, and stated that upon apple, pear, and European plum trees crude petroleum had been used with good results. The preparation popularly known as McBain's mixture, was referred to as very promising, with a suggestion that growers give it a more extensive trial this spring.

It was felt that spraying outfits of greater power and capacity were urgently needed. A resolution was passed requesting the Minister of Agriculture to continue further efforts and financial assistance to abate this pest, which in many instances has proved even more destructive than was at first anticipated.

At the meeting of January 16th, also largely attended, the questions of farm labor and co-operation amongst fruit growers were discussed. The secretary was authorized to place an advertisement in several of the Scottish newspapers asking for good competent farm laborers with and without families, and members were requested to make known their requirements in this district to the secretary as soon as possible. A very lively discussion ensued upon the report of the Committee on Co-operation, which contained a number of important clauses, the chief of which referring to co-operative spraying, uniform grading and packing of fruit in central packing houses, regulation of the distribution of shipments, and the recovery of damages for loss arising out of the carelessness and negligence of carriers and receivers. This subject will be more fully discussed at subsequent meetings, and it is expected that action will be taken of great importance to the fruit trade.

New York State Fruit Growers' annual meeting was held at Geneva, N. Y., January 6th and 7th. A large number of prominent growers from all parts of the state were in attendance. The chief speakers were Profs. Bailey and Slingerland, of Cornell Univer-

sity; Dr. Jordan, director N. Y. Exp. Station; Mr. J. H. Hale, of Connecticut, the Georgia "peach king," and Messrs. A. N. Brown, of Delaware, and C. H. Powell, Washington. Economic and Commercial Fruit Growing were the chief topics discussed. A most extensive exhibit of fruit and apparatus used in fruit culture was held in the city armories. Hon. T. L. Wilson, of Hall's Corners, was re-elected president. Ontario Horticulture was represented by Mr. W. H. Bunting, president of our Provincial Association, and Mr. Jas. Tweddle, of Fruitland. These gentlemen were cordially received and were given an opportunity to tender the greetings of the provincial and local associations to the New York State organization.

London Horticultural Society

THE Directors of the London Horticultural Society have much pleasure in presenting their fourth annual report.

During the year 1903 they have had eight meetings for the transaction of the business of the society, in addition to the annual general meeting in January. No public lectures under the auspices of the society have been given this year.

Owing to the peculiar weather in the early part of the season, causing great irregularity in the blooming of flowers, no spring flower show was held. Two very successful shows were given during the summer months in the City Hall, which was kindly placed at the disposal of the society by the Mayor and City Council.

The first show was held on the 17th and 18th of June, when an excellent exhibit was made. The display of roses, owing to the unfavorable season, was not as good as in former years, but the deficiency was made up by a variety of other flowers. Mention may be made of the collection of perennial blooms by Mr. J. B. Bond, peonies by Mr. George Prichard, early flowering perennial phlox by Mr. C. J. Fox and Mr. R. W. Rennie, Canterbury bells by Mr. H. W. Givens, Columbines by Mr. C. P. Butler and others, and roses by Mr. John Stephenson and Mr. C. W. Furness.

The second show was held on the 12th and 13th of August, and was considered to be, in many respects, the best that the society has yet given. The number of contributors was larger, and the flowers exhibited represented a much greater variety of species than ever before, while the individual blooms were of a higher standard of excellence. It is satisfactory to find that these shows are improving the popular taste and developing a greater interest in the production of rare and choice varieties. The pleasant rivalry between our amateurs, for which these shows afford a friendly opportunity, is of much benefit to those who take part in it, and encourages others to aim at a higher standard in their flower gardens than was hitherto thought possible.

At the August show there were more than forty contributors, among whom it was satisfactory to find a number of new names. It was estimated that the number of bottles containing flowers on the tables exceeded 1,300, and the committee in charge found much difficulty on the second day in providing room for the contributions. Among so many exhibitors, whose products were all of such high quality, it is not possible to select individuals for special mention, the Directors can only express in general terms the gratification that was afforded not only to them but to the citizens at large. The attendance was greater than ever before, and all who came were delighted with the beauty and variety of the blooms that were set before them.

A collective display of autumn flowers was again made by members of the society at the annual exhibition of the Western Fair

during the week beginning September 14th. The tall trophy erected in the middle of the Horticultural Hall, with its several stages covered with rare and beautiful flowers, was a great attraction to the throngs of visitors, and received abundant praise from florists who had come from other parts of the country. One visitor stated that this was "one of the most attractive departments of the Western Fair this year, and the artistic arrangement of fruit and flowers, together in the Horticultural Hall was an object lesson of real value."

During the year the customary distributions of bulbs were made to the members of the society. In the spring half a dozen of Groff's famous Gladioli and some Montbretias were given, together with several roots of a choice Oxalis, the generous gift of Mr. J. A. Balkwill. In the autumn each member received seven bulbs of the Paper-white and twelve of the Princeps Narcissus, and in addition several Daffodils, the kind gift of Miss Burris. One of the plants offered as premiums by the Ontario Fruit Growers' Association was also given to each member, together with the monthly issues of its magazine, The Canadian Horticulturist.

At the request of the directors, Mr. R. W. Rennie attended as their representative a meeting held in Toronto on the 13th of February, for the purpose of organizing a Provincial Civic Improvement Society. The meeting was well attended by delegates from all parts of the country, and resulted in the formation of a league with an influential list of officers.

On the 28th of August a meeting was held in the City Hall here for the purpose of organizing a local Civic Improvement Society. Mayor Beck acted as chairman, and after a full discussion it was decided to form the society, and a committee was appointed to draft a constitution and to submit a list of proposed officers. At a subsequent meeting the committee accomplished the first part of their task, but nothing has as yet been done regarding the election of officers and the actual formation of the society. About fifty persons, including many ladies, have entered their names as members and paid their subscriptions of a dollar each for the year 1904. There ought, therefore, to be no difficulty in launching the society at once and placing it in a position to begin active operations forthwith. The Directors of the London Horticultural Society are in full sympathy with the movement, and many of them have already shown a warm interest in the undertaking. They anticipate a hearty co-operation on the part of all our members.

The Mayor of the city, Mr. Adam Beck, repeated this year his generous gift of $100 to be awarded in prizes in a garden competition. This amount was supplemented by a grant of $50 from the City Council, and the judges were thus enabled to offer a larger number of prizes and to increase the variety of awards. The competition throughout the city was well maintained, and the results were very pleasing, not only in the care and improvement of their own premises b ythose competing, but also in the effect upon their neighbors and the general interest excited.

The Directors and the members of the society in general have every reason to feel pleased with the good work that they have accomplished during the four years of its existence. It is much to be hoped that there will be no diminution of energy during the coming year, and that all will unite in the effort to improve our city and to encourage all its inhabitants to make the surroundings of their dwellings and their places of work and business as wholesome and attractive as possible. Much has already been done, but there is still plenty of room for improvement and ample scope for both individual and united effort.

The treasurer's report, about to be submitted, shows a satisfactory balance on hand, which will enable payment to be made at once for the publication procured for the members.

CHARLES J. S. BETHUNE, Pres.
R. W. RENNIE, Sec.-Treas.

The election of officers for 1904 resulted in the choice of Mr. C. J. Fox for president; W. H. Hamilton, 1st vice-president; E. J. Liddicoat, 2nd vice-president; Mr. R. W. Rennie was subsequently re-appointed secretary-treasurer by the directors.

Kincardine Horticultural Society

List of officers of Kincardine Horticultural Society for 1904:

President—Wm. Welsh, gentleman.
1st Vice-President—M. McCreath, cemetery sexton.
2nd Vice-President—R. D. Hall, gentleman.
Secretary—Joseph Barker, Div. Court clerk.
Treasurer—Joseph Barker, Div. Court Clerk.
Directors—Archie Clinton, gentleman; D. S. McDonald, fruit grower; S. W. Perry, Principal High School; E. Miller, cabinet maker; W. G. Tuck, laborer; Rev. Joseph Philp, Methodist minister; Rev. A. Pomeroy, Methodist minister; Dr. Geo. McKay, retired minister; Joseph Abell, florist.
Auditors—John H. Scougall, town clerk; Edward Fox, jeweller.

SWINE IN ORCHARDS

WHILE many orchardists do not believe in having stock of any kind in their orchards, there are others who find it profitable under certain conditions. If the orchard needs additional food, and most bearing orchards do, the plan of keeping swine or sheep in them is not a bad one provided the arrangement is so planned that the presence of the stock does not in any way work injury to the trees or to the soil. If swine are to be kept in the bearing orchard the ground should be prepared for some such crop as sorghum, clover and rye or any similar crop which will serve as grazing for the animals and add fertility to the soil through their excrement.

On this plan one will help the orchard, but if the hogs are turned into an orchard that is in grass with an idea of increasing the value of the animals by what they may get in grazing, it will not require many seasons of this sort of work before there will be decided injury done to the trees. If an orchard is worth anything at all it is worth caring for in itself and should not be used as an adjunct to the hog pen or the sheep pen unless the animals will more than pay back to the trees through the soil all they take from them.—*Mail-Empire.*

A CANNING FACTORY

THE proposed canning factory for the Leamington district is likely to be an assured fact, as a large part of the $10,000 has already been subscribed. The Leamington News says:

"Our fruit crop will increase, and when the peach orchards planted to replace those frozen out five years ago come in bearing we shall not know where to find a market for our output. South Essex is the very garden of Ontario, and where so much is produced—so perishable, and withal, so delicious—the only sensible thing to do is to do it up in such a way that it can be marketed at any season of the year. A factory where the stock is held by local people will never sell out to a combine, but will always be a blessing to the community. It will not be closed at the dictation of anybody or its output restricted in any way."

Flower Garden and Lawn

WINTER WINDOW GARDENING

AN ADDRESS BY WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

FIG. 2732. GERANIUM, PETER HENDERSON.

THE most important feature necessary for success in window gardening is the window itself. A window in a bright sunny position, where a temperature of about 50 to 55 degrees can be maintained at night, with a day temperature of from 60 to 70 degrees, will furnish the most desirable surroundings in which to grow successfully a collection of window plants in

Many plants can, however, be grown under less favorable circumstances. Ferns, selaginellas or exotic mosses, aspidistras, ficus elastica or rubber plant, cyperus alternifolia (umbrella plant), or even the arum or calla lily, as it is usually termed, are some of the plants that can be grown in windows having a more northerly aspect, where the direct rays of the sun never reaches in winter time. But for flowering plants a more southerly aspect is necessary to secure good flowering results; a window facing the southeast being perhaps preferable, as it escapes the direct rays of the sun at noon that perhaps even in winter time strikes much too warm in a south window for the well being of many window plants. It is desirable on very bright days, especially in late winter or early spring, to shade plants in windows having a southerly aspect, by pulling down the blinds or by partially closing the shutters for an hour or two during the hottest part of the day.

A very high temperature at midday, and perhaps an equally low temperature at night, is not beneficial to the growth of plants, and often induces an attack of insect pests, or of disease, that proves disastrous to a whole collection of plants. An ordinary equable house temperature, such as I first mentioned, with as moist an atmosphere as possible maintained around and about the plants, will be found the most desirable conditions for the successful winter culture of window plants.

To secure the last mentioned condition in ordinary windows is ofte n a difficult problem, as the surroundings are not adapted for using much water around and about the plants. Very much can, however, be done by spraying or sprinkling the foliage of the plants on fine sunny days, more especially the smooth or glossy leaved varieties; or by sponging the leaves of these with a sponge and some clear tepid water. About once in every two weeks will suffice for this sponging or sprinkling. The plants may, perhaps, be removed to the kitchen sink occasionally, where no damage can be done the surroundings by sprinkling.

Hirsute or hairy leaved plants should not be sponged at all, Rex begonias objecting most decidedly to this proceeding. Geraniums, heliotrope, coleus, etc., do not require much, if any, syringing or dampening of the foliage; whilst calla lilies, fuchsias, roses, rubber plants, cordylines and other smooth foliage plants delight in a sprinkle or sponging with clear water very frequently. Always choose a sunny, warm day for this operation, and at a time when the thermometer registers about 65 degrees in the window, or wherever the operation of sponging or syringing is performed.

Much might be said as to the construction and planning of a suitable window and fittings, in which a collection of window plants could be successfully grown, but time will not permit. I feel justified, however, in saying that with the increasing interest shown by our people in the culture and growth of plants and flowers around the home, that architects and home builders might well make this matter of suitable window building a much more prominent feature in their building plans than they have hitherto done. There is no reason why even the smallest villa or cottage could not have a window so constructed that the necessary overhead light and the necessary heat could be obtained, without adding but very little additional expense to the building estimates of the residence.

Watering Plants.—This is a matter that often troubles the plant grower considerably. No set rule can be given to suit all kinds of plants and their conditions, but it is always safe to give any plant that is in good growing condition a good supply of water at the roots whenever the top portion of the soil shows signs of dryness. Giving the plant a small quantity of water at stated times, or at regular intervals, is not the right method to adopt when watering plants. Ascertain first, by closely observing the top of the soil in the pot, whether the plant requires water or not. If the soil appears dry give sufficient water to thoroughly moisten (not sodden) all the soil in the pot, and do not water the plant again until the soil shows signs of dryness. It may be one day, or it may be a week, or even a longer time before it requires more water, but when water is given the plant see that it gets sufficient to well moisten all the soil in the pot.

Another method of ascertaining whether pot plants require water is to tap slightly the side of the pot with the knuckles. If the pot, when struck, emits a ringing sound, the plant requires water. If, on the contrary, only a dull thud-like sound is given out when the pot is tapped, water had better be withheld from the plant for a short time.

Over-watering, over-potting, and insufficient drainage are often the main cause of failure in the culture of window plants. Over-potting is a term used when a plant is potted into a pot two or three sizes larger than the plant requires.

For drainage in pots there is nothing better than small pieces of broken flower pots. About an inch in depth of broken pot can be usually used for six inch pots and larger sizes, whilst half that quantity can be used for smaller sized pots than four inches. Use small pieces of broken pot for the small pots, half an inch square being a good average, whilst larger pieces should be used for the larger sized pots. Coal cinders or coarse gravel can also be used for drainage, but they are more liable to clog and choke than broken pieces of pot.

This matter of drainage is one of the most essential points necessary to success with almost all pot plants, more especially window plants.

The insect pests that are all too common in house and window plants, have been very ably described to you by Dr. Fletcher, as well as preventives and remedies recommended for the attacks of these troublesome and destructive visitors, so that it is not

necessary for me to speak on this matter. Suffice it to say that much can be done to prevent the attacks of insect pests by endeavoring to give window plants as early as possible the conditions I have mentioned, as extremes of heat drought or moisture are the main inducements for insects or disease to attack plant life at any time.

To succeed with a collection, or even a few window plants, they must be closely watched, always keeping in mind the old adage, "that an ounce of prevention is better than a pound of cure."

To secure a bright, healthy looking window of plants during the winter, it is necessary to commence preparations during the preceding summer and autumn months. It is useless and unnatural to expect plants that have been doing duty as decorative plants on the lawn or in the flower border all the summer to continue in their brightness and beauty in the winter as well. Plant life of all kinds demands more or less of a resting period at some season of the year, no matter whether they are plants from a tropical or a more temperate zone. The all enduring geranium even will not meet the exacting demands for continuous flowering that is sometimes made on it by plant lovers. If geraniums are wanted for the window in winter and give good results, they must be grown during the summer especially for that purpose. By striking a few cuttings early in the summer and growing them on in pots out of doors, nice plants can be had by autumn to take into the house. Or small plants at planting out time in early June, potted into six or seven inch pots, and the pots plunged to the rim in the ground until fall, will make nice plants for the window in winter. The tips of the growth should be pinched back until August, and all bloom buds, as soon as they are seen, kept pinched back until September. By plunging the pots in the ground they require less water and make better plants than if they are left standing above the ground.

Many so called "spring flowering" bulbs make ideal pot plants for the window in winter; in fact, I know of no class of plants that give such good results with so little skill and care required to bring them to perfection. The one great point to be gained to be thoroughly successful in growing these bulbs is to secure a good root growth before top growth commences. The only way to do this is to give the bulbs, as nearly as possible, the same conditions for a time as they receive when planted in the open ground.

By potting a few of the various kinds of bulbs suitable for pot culture, at intervals from the end of August to early in December, and burying the pots in coal ashes, sand or light soil a few inches deep, for a month or six weeks or even longer, a good supply of roots will be obtained, when the pots can be brought in at intervals to the window as required. When the bulbs are first planted the soil should be thoroughly watered. If well packed and covered with ashes, etc., as before mentioned, they will require no more water until they are brought out into the window. After this the soil must never be allowed to become quite dry in the pot. A damp, cool place suits bulbs best to make roots in.

Roman hyacinths can be potted in September and plunged out of doors until October, when they will be ready for bringing into the window as required. There is no bulb that will give more satisfaction than the Roman hyacinth, the white variety being preferable if treated as I have described, as they give such a plentiful supply of their sweet scented, waxy white flowers in return for the small amount of care they require, and besides they are not very particular about the kind of soil they grow in, provided it is not of too heavy a nature. This remark as regards soil will apply to almost any kinds of bulbs used for pot culture.

TO BE CONTINUED.

FIG. 2733. PERENNIAL BORDER AT THE EXPERIMENTAL FARM, OTTAWA.

A PERENNIAL BORDER

BY W. T. MACOUN, HORTICULTURIST, EXPERIMENTAL FARM, OTTAWA.

AT the Central Experimental Farm, Ottawa, there are more than 1,700 species and varieties of herbaceous perennials. As there is only a limited number of these which can be recommended for general planting, the writer has endeavored to bring the best varieties into a comparatively small area, in order that they may be more easily examined and studied. A border near the house about 150 feet long by 9 feet wide serves the purpose nicely, a background of purple leaved Barberry hedge adding much to the effectiveness of the flowers. The accompanying photo, taken by Mr. Frank T. Shutt, gives some idea of the appearance of the border. The perennials are arranged as far as possible to keep up a succession of bloom from early spring until late autumn. Between the clumps of perennials are small clumps of tulips and narcissi, which make the border very gay during part of April and May. Scattered all through the border are Iceland poppies, which begin to bloom in May and continue until July. In July and August the Shirley poppies, which are also scattered through the border, keep up the show. There are also a large number of clumps of Cashmerian Larkspur, which produce a fine effect in late summer. The plan is to both keep up a succession of bloom throughout the summer and to have plenty of blooms, and this is well maintained by the present arrangement.

THE CHRYSANTHEMUM

BY H. L. HUTT, B.S.A., ONTARIO AGRICULTURAL COLLEGE, GUELPH.

FIG. 2734. CHRYSANTHEMUM—ROSE TRAVENA.

THE chrysanthemum, or "Mum," as she has been rudely nicknamed, has been justly called by one writer "The Autumn Queen," and by another "The Star-eyed Daughter of the Fall." Coming into bloom in the month of November when all nature in our northern clime seems to be in its most sorrowful mood, I sometimes think this grand flower has been given as a compensation for the loss of summer friends, and to help us to be bright and cheerful at the Thanksgiving season.

That increased attention which is being yearly paid to its cultivation shows that its popularity must be based upon real merit. One writer has said that "the transcendent merit of the chrysanthemum lies in its almost limitless variety of form, texture and color of flowers." To this I think might be added the ease with which it may be cultivated. It is not now the flower of the florist only, but it is being more generally grown throughout the country in the homes of amateurs.

ITS HISTORY.—Very little that is new can be said of its history, yet something along this line may be of interest. The chrysanthemum has had its origin from one, or perhaps two, small, single-flowered species of plants native in Eastern Asia, their nearest relatives in this country being the disreputable ox-eye daisies. For many centuries before it was introduced into Europe or America it was cultivated, improved, and brought to great perfection by the painstak-

FIG. 2735. CHRYSANTHEMUM—IVORY

FIG. 2736. CHRYSANTHEMUM—MAUD DEAN.

ing gardeners of China and Japan. In the latter country it is the national flower, and may be seen upon all the modern Japanese coins. The "kiku," as it is there called, is also one of the crest badges of the imperial family, and is used on the official seal. On the ninth day of the ninth month it held the annual "Feast of Chrysanthemums," when, it is said, the people not only revel in the beauties of the "mum" but feast on a cold slaw made of its petals. To some unknown Dutch voyager is probably due the honor of first introducing it into Europe. This was about the end of the seventeenth century, but it was not until the second decade of the present century that the flower came into general cultivation.

The first seedling raised in Europe was in 1827, and the first chrysanthemum show held in England was at Norwich in 1829. New varieties were from time to time brought in by the tea ships, and the list of varieties under cultivation increased each year. The first plants of the Pompon section were sent to England in 1846 by Robert Fortune, a collector for the Royal Horticultural Society, and in 1860 he introduced the first varieties of the Japanese type. From that time to the present the interest in its cultivation has steadily increased.

Just when the chrysanthemum was introduced into America we do not know, but the first chrysanthemum exhibit for prizes on this continent was held at Boston in 1861, under the auspices of the Massachusetts Horticultural Society. In 1868 it was styled a chrysanthemum show. These shows are now common annual occurrences throughout the country. The chrysanthe-

FIG. 2737. CHRYSANTHEMUM—N. H. LINCOLN.

FIG. 2738. 1. Plant in suitable condition for furnishing cuttings. 2. Sample of cutting.

mum show at Toronto last fall was probably the finest exhibit of its kind that has ever been held in Canada, and excellent smaller shows were held in many towns and villages throughout the province.

POSSIBILITIES OF DEVELOPMENT.—At each annual exhibition new varieties are being introduced, and something new of interest is added to the development of this "Star-eyed Daughter of the Fall." The size has been greatly increased and the variety of shades of color has been multiplied. The variety which created the greatest sensation at the time of its introduction was the one named after Mrs. Alpheus Hardy, this being the first of the hairy or ciliated type, which is now represented by many excellent varieties in various shades of color. With all the new shades of color which have appeared, we have still, however, to wait for the much talked of blue chrysanthemum. How long we may have to wait is hard to tell.

FIG. 2739. A well-rooted cutting.

What, to my mind, is most needed now in the way of improvement, is the development of constitution and strength of stem in the plant. Many of our finest varieties, in order to show their bloom, have to be supported like cripples on crutches and staked with a forest of props. When these supports can be done away with a considerable step in advance will have been made.

METHODS OF CULTURE.—Open air culture in the flower border is not altogether satisfactory in this latitude on account of the danger from early frosts, although in the southern part of the province I have frequently seen them grown in this way. The Pompon varieties, with their bright colored little button-like flowers, are the hardiest and best adapted for this purpose, as are also some of the early flowering larger varieties. Small plants may be set out as soon as danger of frost is over in the spring. They should be planted from one and a half to two feet apart, in good rich garden loam, kept well cultivated, and watered if necessary. The quality and quantity of bloom will be almost in direct proportion to the amount of attention given them.

OPEN GROUND, FOLLOWED BY POT CULTURE.—This is the method usually followed by amateurs who have not the time or conveniences for growing the plants from first to last in pots. About the last of August the plants are lifted from the beds in which they have been growing all summer and are potted in eight or ten-inch pots. This must

FIG. 2740. Chrysanthemum as first potted into three-inch pots.

FIG. 2741. 1. "Mum" in four-inch pot ready for first heading back. 2. As headed back.

be done carefully, with as little injury to the roots as possible. After potting they should be well watered, and shaded during the hottest part of the day for a week or so until the roots become established in the pots. They may then be kept out of doors and allowed to get all the sunshine possible, taken into the house as the nights become colder, and placed in bright sunny windows where their blossoms will look out and smile in contentment upon the blustering storms of November and December.

ALL SEASON POT CULTURE.—This is the method by which the best results are obtained, and as it is practiced altogether in the production of exhibition plants, and frequently also by amateurs in their home collections, I shall speak of it more fully and in detail.

PROPAGATION.—When the plants have done flowering they should be cut down to within a few inches of the soil. A forest of little shoots will spring up which may be used to start new plants. These cuttings may be taken any time from January to May, but as a rule those taken in February or March give the best results. The cutting should be about three inches long, made with a smooth cut at the bottom just below a joint, and the lower leaves should be removed. The roots may be started by inserting the cuttings in clear, sharp, gritty sand. If but a limited number of plants are wanted they may be started singly or otherwise in small flower pots. An old bread pan with a perforated bottom and filled with about three inches of clear sand makes an excellent propagating bed for the use of the amateur. It goes without saying that the sand should be kept moist, and for a few days after the cuttings are inserted they should be shaded from the midday sun by placing over them a sheet of newspaper, but as soon as established in their new quarters the more sun they get the better.

POTTING.—As soon as it is well rooted and a few new leaves have formed, the young plant should be potted into a three-inch pot. When the roots have filled this, as may readily be seen by straddling the

FIG. 2742. "Mum" in six-inch pot, ready for second check.

stem with the fingers and tipping the plant out, it should be repotted into a pot one or two sizes larger, from which size it should be potted into a six or eight inch pot, and allowed to bloom in this, though better results are obtained by getting the plant into an eight or nine inch pot a month or two before the time of bloom. When potting into any size of pot larger than four inches, an inch or so of broken pottery, brick, or charcoal should be placed in the bottom of the pot to assist drainage.

THE SOIL.—The soil for chrysanthemums, or in fact any pot growing plant, requires considerable attention. No absolute rule can be laid down as to what mixture is the best, as soils vary so much in different parts of the country. One of the chief ingredients in any mixture should be well rotted sods or turf. We prepare this by cutting the sods in the fall, piling them upside down in a large heap, with a few layers of rotting manure throughout the heap. During the following summer the heap is chopped down and turned, and when needed for potting enough sand is added to make the mixture friable so that it will not bake in the pots. A little bone meal mixed with it at this time gives good results afterwards.

WATERING.—Many amateurs are at a loss to know how to water pot-grown plants properly. One of the best rules that can be given for the guidance of such is to withhold water until the soil begins to look dry on top, then give a thorough soaking. A florist can always tell when the plants need watering by the hollow sound that the pot gives when rapped with the knuckles. The frequency with which plants need watering depends much upon the temperature and the amount of moisture in the atmosphere, as well as upon the exposure to strong sunshine. Rain or soft water is the best. Besides watering the soil it is well to occasionally syringe the foliage, or to take advantage of nature's watering by placing the plants outside during a gentle rain.

EXPOSURE TO SUNLIGHT.—Chrysanthemums revel in sunshine. There are a few plants like the Calla lily, begonia, and fuchsia which do best when not exposed to the strong midday sun, but the chrysanthemums can hardly get too much of it, provided the temperature does not get too high accordingly. When grown in a window where the light comes all from one side, the plants should be turned every day so as to keep them growing symmetrically, otherwise they are likely to turn their backs upon the house-

"Mum," grown as a tree plant.

hold and smile upon the strangers in the street.

Training and Staking.—The method of training the chrysanthemum depends very much upon the object sought. If the grower desires to get an extra large bloom the plant should be trained to a single stem. All of the lateral buds should be pinched off as they appear and the terminal bud allawed to develop a bloom. In this way we get an immense flower, but the plant is, to say the least, top-heavy and unsightly.

The best looking specimens, both plant and bloom considered, are grown as bush plants. To obtain a plant of this kind the terminal bud must be pinched out when the plant is five or six inches high. In a short time five or six shoots will branch out, which must also be stopped when four or five inches long, and the operation repeated upon the shoots which branch out from these until we get a bushy symmetrical plant, having plenty of good strong branches upon which the bloom will appear later on in the season. If quality rather than quantity of bloom is desired the weakest of these flower buds may be pinched out and the vigor of the plant directed into the larger buds left.

Staking will be found necessary to support the branches by the time the plants are half grown. The neatest and least conspicuous stake we have yet found for the purpose is made out of stout, corrugated steel wire, like that used for stays in wire fences. These may be painted so that they will hardly be discerned among the dark green of the foliage. We use three of these stakes to each plant, the length varying from two to four feet according to the height of the plant. Two or three hoops of much smaller wire are tied around these forming a circular trellis with the plant in the centre, keeping it in shape with as little unsightly staking as possible.

Growing Exhibition Plants.—For the growth of large exhibition plants more care is necessary than can usually be given by the amateur, and unless he has a greenhouse it is hardly worth while attempting it. To get a standard plant, which is expected to assume tree-like proportions by October, a vigorous growing variety must be selected and started early. It must be trained to a single stem and allowed to grow to a height of from three to four feet before it is stopped. A bushy head may then be formed by repeatedly nipping back the branches at every first or second joint.

(TO BE CONTINUED.)

THE PREMIUM PLANTS AND BOOKS

EVERY subscriber sending $1.00 membership for 1904 will receive: (1) The Canadian Horticulturist for 1904; (2) The Annual Report of the Ontario Fruit Growers' Association; (3) The Annual Report of the Entomological Society; (4) The Annual Report of the Fruit Stations; (5) A choice between the Dorothy Perkins Rose and the X X X X Gladiolus.

(1) The Dorothy Perkins, a new pedigreed climbing rose. We give the originator's account and description:

Parentage: This rose was originated from seed of the Japan variety, Rosa Wichuraiana, hybridized with pollen from that grand old rose, Mme. Gabriel Luizet. The seed plant was chosen for its hardiness and vigorous habit of growth, the pollen parent for its beautiful color and remarkable freedom of bloom. The qualities of both are combined to a remarkable degree in the hybrid, which was one of a lot of two hundred seedlings hybridized in the same manner. While many of the others were of great merit, the Dorothy Perkins was the best of them all.

Hardiness. In this important point nothing more could be desired. Two unusually severe winters failed to injure the plants in the least, although during one of them the temperature went as low as 20 degrees below zero and there was not the usual snowfall to protect them.

The Flowers are of large size for this class of rose, usually about one and one-half inches across; are borne in clusters of from ten to thirty and are very double; the petals are very prettily rolled back and crinkled; the buds are remarkably pretty, being pointed in shape and of just the right size for the button hole.

The Color is a most beautiful clear shell-pink and holds a long time without fading. Even when the flowers commence to fade the color is still pleasing, being then a lovely deep rose.

In Vigor the Dorothy Perkins is a true descendant of Rosa Wichuriana, making in a single season strong, lusty shoots, often of ten to twelve feet in height.

In Habit of Growth it is, unlike its seed parent, decidedly upright, having, as stated by Mr. Wm. Scott, Assistant Superintendent of Horticulture at the Pan-American, exactly the habit of the now well-known Crimson Rambler. It is therefore especially adapted for planting as a companion rose to Crimson Rambler.

Fragrance. The flowers are very sweetly scented, a characteristic not possessed by most other roses of this class.

The Foliage is of a deep green, of thick leathery texture, and remains on the plant in perfect condition till well on into the winter, making it almost an evergreen variety.

FIG. 2744. DOROTHY PERKINS ROSE.

At the Pan-American Exposition there was a bed of Dorothy Perkins roses which attracted an immense amount of attention, although the plants were young stock which had been propagated only some eighteen months before. Mr. Wm. Scott, Assistant Superintendent of Horticulture expressed in the Florists' Review the following unsolicited opinion regarding the variety:

"Messrs. ———— sent us last year some plants of their new Rambler rose, Dorothy Perkins. This has exactly the habit of the well-known Crimson Rambler. They have flowered splendidly and have been very brilliant. This seems to me to be a great acquisition, and I believe it to be a good forcing rose. The individual flower is larger than the Crimson Rambler with not such heavy trusses, but it is a beautiful shell-pink in color." Later on Mr. Scott wrote: "The Dorothy Perkins proved to be just as good a forcing rose as the well-known Crimson Rambler. Had the plants been grown on my own grounds and potted without delay they would possibly have been still better. As it was they forced well and flowered profusely."

From Gardening Illustrated (London): "A beautiful New Rambler Rose. We now and then get a very good novelty in the way of roses from the United States. Dorothy Perkins is the latest comer. The charming little double

shell-pink flowers as they open, remind one of the miniature Provence de Meaux, only that they are brighter and rather larger. They are produced in splendid clusters of twenty to fifty flowers. One can imagine, therefore, the effect obtained from a well developed plant. Growths are made in one season of 10 to 12 feet long. Although this new rose was raised from Rosa Wichuriana, crossed with the old H. P. rose, Mme. Gabriel Luizet, it loses the procumbent form of the seed parent, and, instead, partakes of the upright character of the Crimson Rambler, so that is is a first-rate companion of the latter."

FIG. 2745. CALLA AND EULALIA.

CALLAS

A VERY successful arrangement of potted calla lilies is shown in the accompanying cut. A florist writing to the Country Gentleman says of it:

It was a large pot containing three strong callas, and in the center a plant of zebra grass (Eulalia japonica zebrina, var.) The soil was rich, and during the winter a top dressing of fine manure was given it, with plenty of water. The growth was magnificent, both of the callas and the grass, which gave the whole object a particularly pleasing effect that is but too poorly expressed by a picture.

Many flowers were borne, and it continued in beauty till late in the spring, when it was planted in the garden and given a rest.

A Neglected Fruit

The dewberry in its glory is a most luscious fruit, but it is known only in our large markets. Many of our small dealers in the local markets have never even heard its name. Its cultivation has been left to the specialist almost entirely, because farmers have been ignorant of its value, and the method of growing. The farmer has been fighting the wild dewberry all his life, and is loath to believe that any good can come out of Nazareth. If he only understood how easy it is, he could add a money-making crop to his list with small expense and trouble. Given the right treatment at the proper time, it turns out a very profitable investment.—*Country Life in America.*

TREES

FRUIT ::: ORNAMENTAL

SPLENDID ASSORTMENT

Actually first hand. Why pay ntermediate profits when you can **buy direct from the growers?** Send for price list and catalogue at once to

WINONA NURSERY CO.

Winona, Ontario.

Try the

CENTRAL NURSERY

if you are interested in good stock.

True to name and O. K. Trees for Lawn Orchard, and Garden. Fresh dry roots and all just the kind wanted.

ORNAMENTALS, EVERGREENS, SHRUBS ROSES, BERRY PLANTS, Etc.

The Climax and October plums are like California fruit in size, and we say good enough. Try them. Send for price list and order in good time. We can please you.

Choice Seed Potatoes. Eggs for hatching. Wyandottes.

A. G. HULL & SON, - - St. Catharines, Ont.

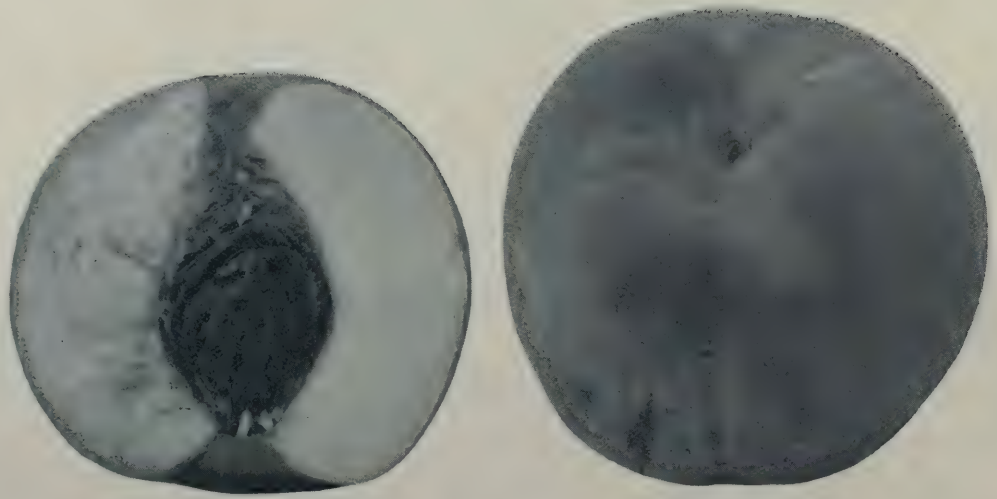


FIG. 2746. THE CHAMPION PEACH.

The Canadian Horticulturist

MARCH, 1904

VOLUME XXVII NUMBER 3

CHAMPION PEACH

A BEAUTIFUL white fleshed peach with a red cheek, and free stone. The flavor is delicious, and it may be classed as the best dessert peach of its season, but a little tender for distant shipments.

ORIGIN: Illinois.

TREE: Vigorous, moderately productive.

FRUIT: Large, frequently measuring 2½ inches in diameter; form, roundish, fairly regular; color of skin, creamy white, with red cheek in the sun; suture, two thirds; apex, small in a slight depression; cavity, deep; stone, free.

FLESH: White, pinkish at the pit; texture fine, tender, juicy; flavor rich, sweet, and agreeable.

SEASON: September 1st to 10th, coming in with last Yellow St. John and the first Early Crawfords.

QUALITY: Dessert, among the best.

VALUE: Very good for home markets, and a good shipper.

THE WHITE FLESH PEACHES

BY THE EDITOR.

THERE seems to be a distinct difference in taste between peach consumers in England and those in America. With the former the white flesh are much preferred to the yellow, while with us there is a decided preference for the yellow. Perhaps this is chiefly due to the great popularity of that magnificent American yellow peach, the Early Crawford, which has for so many years had no rival in the markets, whether for dessert purposes or for canning. It was a fairly good shipper, compared with such contemporary white flesh varieties as Early Purple and Old Mixon, and was therefore planted more widely than any other.

This prejudice in favor of the yellow peaches will be for a long time in the way of the new white varieties taking the place to which their merits entitle them; for orders from consumers call for the yellow flesh.

On the other hand the very fact that everybody is planting the yellow varieties may give rise to a special demand for some of the new and excellent white flesh dessert peaches. Farraud, of the South Haven (Mich.) station, says on this point: "As a

rule, white varieties have not been satisfactory, and many growers have removed them from their orchards, while very few are being planted; and yet the better white varieties grown at the station grounds, well packed in open slat, one-fifth bushel baskets, sold for a higher price than many of the later yellow varieties on the Chicago market."

The Champion, which we describe in this issue, is large, handsome, and of the highest quality for dessert. It is a fair shipper and moderately productive, and for our own table it is a special favorite. To be profitable for market it would need to command a price above the average.

The Stevens Rareripe is a white flesh peach of sprightly vinous flavor, coming in late in September, and is more promising as a profitable market variety than Champion; another season we hope to secure a photograph of this peach for our journal. Of the other white varieties, two very early ones have done well at Maplehurst for three years past, viz., Sneed and Greensboro; the former, the earliest variety we know, of fair quality and of some value for a near market; the latter ripening a little in advance of Rivers, and, though quite as tender in flesh, in our opinion is a more desirable variety for table use, or for a near market.

Editorial Notes

MARCH is a changeable month, and no definite plans for work can be laid down for the guidance of the gardener.

* * *

PRUNING is usually finished during this month, because as soon as the frost is out of the ground the work of plowing and planting will begin on well drained soils. Gathering the brush is a tiresome job in a large orchard, and much labor would be saved if the former could have a horse and brush boat with him and throw on it the prunings as he makes them.

* * *

BRUSH should be gathered and burned as fast as it is drawn to the burning place. Once get a good fire going and even the green brush, if carefully placed, will be consumed.

* * *

OLD TREES, past their usefulness, should be dug out by the roots. Cut off the upper limbs and leave as high a trunk as possible for leverage. Attach a log chain high up, and a span of horses will materially assist the work of taking out the old trunks, roots and all.

* * *

GRAPE PRUNING also should be finished as soon as possible, and the arms tied in place. Then a harrow drawn between the rows will remove the prunings to the ends, where it can easily be forked over on to the brush boat and drawn away to the burning place.

* * *

THE ASHES from the burnt brush is valuable as a fertilizer for the fruit orchard, and should not be wasted. The sooner it is scattered over the ground underneath the trees the better.

* * *

BARN MANURE is the very best fertilizer for the orchard, and, if procurable, leaves all commercial fertilizers out of sight. It should be drawn out and spread about the trees while the frost is still in the ground;

otherwise, when the rush of spring work comes on it is apt to be neglected.

* * *

SETTLE AT ONCE upon the varieties you wish to plant or to top graft, and order in good time, lest you be obliged to accept substitutes or do without for a year. The reports of the Ontario Fruit Stations are of great value to intending planters, because the information given is entirely in the interest of fruit growers, and not of the nursery men.

* * *

DWARF PEARS should be well cut back. The pyramidal form is the ideal for them, but is scarcely practicable unless begun with the first year's growth. In any case the young growth should be cut back about one-third, or, if very vigorous, one-half.

* * *

CHERRY TREES need very little pruning, and no large cuts should be made. Simply thin out the small branches where they overcrowd, and cut back the top if inclined to reach up too high.

* * *

THE BURBANK PLUM tree is one of the ugliest of growing trees, and only by constant attention can it be made presentable. Perhaps its sprawling, drooping habit has something to do with its wonderful productivity. The Wickson, on the other hand, is an upright grower of thin willowy branches, and we fear will never be fruitful enough to be profitable.

* * *

PEACH TREES should be gone over with the pruning shears and the over-vigorous upper and outer branches well shortened in, and the interior of the tree well cleared of its dead and feeble wood.

* * *

ALL PRUNING should be completed before spraying time, so that the poisons will not be wasted upon useless wood.

A Grade for No. 2 Apples

AT a meeting of the American apple shippers in St. Louis last November, it was agreed that a No. 2 apple may be one-fourth of an inch less in diameter than No. 1; not over 20 per cent. affected by defacement, scab, dry rot, worms or other defects; hand picked, not bruised, of bright color and shapely. We in Canada have not yet defined our No. 2 grade, but the results of having a No. 1 or XXX grade has been so excellent during the past season that no doubt our growers are quite prepared and indeed anxious to have the No. 2 or XX grade defined also. Anything that will facilitate sales of our fruit f. o. b. is decidedly in the interest of the growers.

Kieffer Trees as Stock for Bosc

PERHAPS no variety of pear has been so widely planted in Ontario pear orchards as the Kieffer. Its wonderful vigor, its amazing productiveness, and its fair appearance gave it great popularity for a time, until alas! it met universal condemnation for quality. Now there is little sale for the fruit except to canning factories, and many growers are asking whether it makes a good stock for top grafting other varieties upon. At Maplehurst we have been putting Anjou and Bosc upon it, and the growth is encouraging. Powell, of Washington, D. C., has observed a "nice balance between the roots, the body, and the top of the tree, and that each part has a strong influence upon the vigor of the other two;" that "pears are invigorated when worked on stronger growing bodies; and that it is a practice with some nurseries to double work slender growing varieties, like Bosc, on strong growing bodies like Kieffer or Bartlett."

Since the Bosc is one of our best export pears, combining good size, fine appearance, and good quality, and, being withal an excellent shipper, our pear growers need not re-

gret having planted Kieffers, for they will form excellent trunks on which to top work the best varieties.

Hardy Apples

GREEN, of Minnesota, recommends the following varieties as being of the first degree of hardiness : Duchess, Hibernal, Charlamoff and Patten Greening; and of the second degree, Wealthy, Longfield, Tetofsky, Malinda, Okabena and Peerless.

The crabs and hybrids most recommended are Virginia, Martha, Whitney, Ealy Strawberry, Minnesota, Sweet Russet, Gideon No. 6, Briar Sweet, Florence and Transcendent.

In light dry soils in the cold sections it is recommended that the trees be planted 12 inches deeper than they grew in the nursery. This of course is with a view to escape frost, but while it may be helpful in this way, it has been shown that the size of the tree and the extent of the root development decreases in proportion to the depth of planting below the normal.

Don't Butcher Your Apple Trees

IT is discouraging to preach common sense in pruning apple trees, and to see so little of it used by our fruit growers in practice. The saw is being used unmercifully on every side, as if the trees were so many cordwood sticks, instead of living beings; and every year the lower limbs must come off and the fruiting branches grow higher and higher. Dougherty, of Indiana, has twenty acres of apple trees, which are an example of the wisdom of his system of pruning, which contemplates in the first place lower branch growth. All over his orchard this peculiar growth is noticeable, the branches often sweeping to and resting upon the ground. He claims (1) that these lower branches are the strongest and most vigorous, being closest to the root supply; (2) that the foliage in summer protects the ground from the burning rays of the sun, and (3) that it greatly facilitates the gathering of the fruit.

We do not give this instance to induce every one to prune his trees so low as Dougherty has done. On certain soils not needing cultivation, or where mulching takes the place of tillage, it might answer; still it emphasizes the mistake of the opposite extreme.

Profitable Strawberry Growing

A COMMON mistake in planting strawberries consists in setting them too far apart and trusting to the runners to fill up the spaces. Far better plant too near and have your beds well covered, or your rows well matted, with bearing vines the first year. The rows may be set five feet apart if you choose, but 12 or 15 inches apart in the rows is surer of good results than any greater distance. Early potatoes, peas or beans may be grown between the rows the first year, and be harvested by the time the runners begin to occupy the space.

Several growers have recently reported in favor of Wm. Belt as being the best mid-season variety.

The Competitive Power Sprayers

THE time is so near at hand when spraying is to begin for the best success in fruit growing, that it is none too soon to consider whether we can improve upon our hand machines, considering cost. The two power sprayers most prominent at present are the Niagara Gas Sprayer and the Wallace Sprayer, both of which were shown at the recent meeting of the New York State fruit growers. The first is operated by carbonic acid gas, which gives the pressure without the use of any pump. The gas is shipped in reservoirs, just as soda fountain fillers are, and cost from ⅛ to ⅛ cent per gallon of liquid applied, with cost of freight added. The second was

shown by Wallace & Co., of Illinois, and in it the pressure is furnished by compressed air made by a gear attached to one of the hind wheels of the wagon. Where the orchard is 40 rods or more from the filling point, it is claimed that enough pressure can be pumped up to spray out a tank full with the additional power gained by going from tree to tree. We thought the gas sprayer the finest instrument, but no doubt the Wallace machine will be much more economical in running. The difference in first cost is not great, the former a little less than $100, the latter a little over that amount.

FIG. 2747. A TOPIARY GARDEN (See page 55.)

How San Jose Scale Spreads

AT an interesting Farmers' Institute meeting at Grimsby in January, Mr. Smith, of Burlington, gave an interesting talk about the dreaded San Jose scale. He had observed that certain trees, such as the Greening apple and the Japan plums, were especially subject, while other kinds, such as the Kieffer pear, are comparatively exempt. Now it is usually supposed that these tiny scales are carried by the wind, or upon the feet of birds, from one orchard to another, but if so, why should one kind of tree escape and another be infested? Mr. Smith had found that the male scale is winged, and his observations have led him to the conclusion that this male carries the infant wingless mites and places them upon such trees as are the most congenial. If his inference is correct it reveals a wonderful degree of intelligence in such a tiny brain.

For winter and early spring spraying he advised the lime sulphur spray, and for summer the kerosene emulsion, 1 gallon of kerosene to 7 of water.

Onion Mildew

MR. A. J. COLLINS, of Listowel, asks what is the trouble with his onions. For two years past, after growing nicely for some time, they seem to get a check, cease growing, and the tops turn brown and rusty. Several others in his neighborhood make a similar complaint. We referred this matter to Prof. Lochhead, O. A. C. Guelph, for his opinion, and have received the following in reply:

I am of the opinion that the cause of the death of the onions to which Mr. Collins refers is the downy mildew of the onion, a fungus which under certain conditions is quite destructive. The disease shows itself first by the yellowing of the leaves in patches. These patches soon become covered with a whitish mildew, changing soon to light lilac. Eventually the whole leaf becomes affected and dries up, leaving nothing but a stalk between the bulb and the base of the leaves. The white mildew, as first noticed on the patches of the leaf, consists of the fruiting body and summer spores of the fungus. The spores are soon liberated and scattered by the wind to other plants in the patch. In the fall, however, another

kind of spore is formed, which rests over winter in the leaf and infects new plants the following season.

As to treatment, the disease may be prevented from spreading if the plants are dusted with sulphur or sprayed with sulphide of potassium, an ounce to two gallons of water. To be effective these must be applied early at the first indications of the disease.

Again, to prevent the infection of the spring crop, the resting spores must be attended to, and these spores can be destroyed to a large extent by collecting and burning all the diseased leaves. It will not do to allow the leaves to rot or even to bury them in the ground, for the resting spores will retain their vitality for two or three years. Do not plant onions on the same plot more than one or two years in succession. I should be pleased to hear from all persons who have difficulty in growing onions on account of the mildew or maggot.

Tomato Growing

THIS branch of fruit growing is much followed in sections where the soil is sandy loam, or otherwise suitable. For market an early variety, such as the Earliana, is needed, and it should be grown in a greenhouse and hardened by transplantings early enough to be in flower when set in the open field. Danger of spring frosts is scarcely over before the end of May, so that even in the most favored sections it is risky, to say the least, to plant out earlier. The writer has contracted for such plants at $10.00 per 1,000.

Tomatoes for Factories

FOR this purpose of course quantity rather than earliness is the object, because the grower usually contracts to sell his whole crop at a fixed price. Very rich soil is not considered necessary; land that will produce a good crop of corn will do very well for tomatoes. A clay loam, not too heavy, is preferred by many to sandy loam for giving a large crop. Such land, of course, is better fall plowed. The plants for such a plantation can be had at a nominal price, because earliness is not essential; or they may be grown in a cold frame in rich warm soil on the south side of a building or close board fence, until four or five weeks old, when they may be set out in the field in rows about four feet apart each way, for cultivation two ways. Begin cultivation early, being careful not to touch the plants with the cultivator, which is ruinous to them, and continue until the vines begin to fall flat and cover the ground.

The Soda Bordeaux

A SUBSCRIBER in Waterdown asks for the method of preparing the soda Bordeaux mixture, mentioned in the January number of this journal; also the cost of the soda. He is not, he says, at all in love with the Bordeaux mixture. In this, no doubt, we will all agree with him, and heartily wish that some cleaner and less troublesome fungicide were forthcoming. The new nozzles, which do not drip upon the hands, are a great convenience to the operator while spraying, and remove one of the troublesome associations of its use. At Rochester this soda mixture was discussed, and while acknowledged to be effective, it was described as very hard upon the hands and upon the pump. The soda is cheap enough, only about 3 or 4 cents a pound.

Mr. Macoun, horticulturist of the C. E. F., Ottawa, gives the following formula for the soda bordeaux:

4 lbs. sulphate of copper.
5 lbs. washing soda.
40 gallons of water.

He adds: This mixture has been used rather extensively in Great Britain and Europe during the past few years, especially

in spraying potatoes. It is claimed that it adheres better than the ordinary bordeaux. This mixture is thought, however, to be harder on the spray pump than the ordinary bordeaux. It has been used at the Central Experimental Farm, but no definite results have been obtained. The formula given above was prepared at the Central Experimental Farm, and experiments were made to determine the amount of soda necessary to neutralize the copper sulphate.

Water Core in Apples

A CORRESPONDENT at Cornwall asks the cause of water core in his Gideon apples. He has a great many of this variety and nearly all are affected.

We know of no one who has made a study of the cause or remedy for this condition. We have observed it in our Golden Sweets, the off year of bearing, when there were only a few specimens on the tree; and occasionally in wet seasons, in our Kings.

We referred the question to W. T. Macoun, of the Central Experimental Farm, who says in reply:

"The Gideon apple has been sold and planted to quite a large extent in the northern parts of Ontario and the province of Quebec, but although the tree is hardy and the fruit handsome it has proved a great disappointment owing to its becoming water-cored. There has been no study of the water-coring of apples, as far as I am aware, and no statement made as to the exact cause of it, but after sixteen years' experience with a great many varieties at the Central Experimental Farm we have been able to draw some conclusions. Apples of Russian origin are much more subject to water-core than apples of American origin. Apples showing Siberian crab parentage are more subject to water-core than others. Water-coring is evidently a physiological injury caused by certain climatic conditions. Apples, such as Gideon, which water-core, should be picked early and disposed of early, as the injury increases as the fruit matures, and some Russian varieties become quite translucent, they are so badly affected."

Thinning Apples

EXPERIMENTS by Beach, of Geneva, N. Y., go to show that in seasons of very heavy crops, thinning, if done early, say within three or four weeks after the fruit sets, both increases the size and improves the color, but in cases of a small crop no benefit was perceptible.

In the main his method was to remove all wormy, knotty and otherwise undesirable fruits, and each cluster thinned to one fruit. The cost for a well loaded tree of average size he estimates at 50 cents.

Paint For Barns and Sheds

A SENSIBLE job for mild days toward spring is the application of a fresh coat of paint or whitewash to the farm buildings. Perhaps in no respect is the Canadian farmer and fruit grower more negligent than with the exterior appearance of his stables; his barns, his sheds, which are very commonly left unpainted and most untidy in appearance. Not only does this neglect expose the buildings to early decay, but it also exhibits a lack of taste on the part of the owner. For buildings sided up with planed lumber the regular white lead paint is of course the best, but for the many rough sheds and barns throughout the country a cheap paint or whitewash will work a wonderful revolution. This may be made by using just enough water to moisten the slaked lime, and then adding kerosene oil to thin it to a consistency of easy application with a whitewash or other large brush. A little color may be added if so desired. A quick way of covering large barns and sheds is by use of the spray pump. Windows

should be first covered with heavy paper or other protection, and then the work may be done with freedom.

Favored Fruit Sections

Sir: What section of the province do you recommend most highly for general fruit growing, including the tender plants, considering not only climate and soil, but also nearness to markets, economy in freights, etc.

I. S. BELL, Peterboro.

For tender fruits, such as peaches and English cherries, the section adapted is very limited, being mostly confined to the region south of the Great Western division of the Grand Trunk Railway, the Burlington district, and to a less degree the east shore of Lake Huron, including the Beaver Valley. Pears and the finer plums may be grown over a much broader belt throughout a district north of Lake Ontario and east of the Georgian Bay; while apples, of course, may be grown much farther north, especially by making a careful selection of hardy varieties.

For commercial and economical marketing all depends on the markets selected. If for the northern shore of the Georgian Bay, a point near Collingwood or Owen Sound would be convenient to steamer transportation; if for Ottawa, or Montreal, or for export, a section such as we have east of Hamilton, with competition between the C. P. R. and G. T. R., and also between Canadian and Dominion express, is desirable.

Will Co-operative Packing and Selling Work in Ontario

THE low prices received for fruit shipped on consignment, and the excellent address of W. H. Owen at our Leamington meeting, has created much general interest in Ontario in the evolution of some practical method of carrying out co-operative buying and selling.

At a representative meeting of Niagara district fruit growers at St. Catharines on the 30th ult, the question was discussed at some length, but without reaching a definite conclusion. The only scheme presented was by Mr. A. H. Pettit, of Grimsby, which provided for the formation of a stock company for the securing of a site, the erection of buildings, and the current expenses of the company. The large amount of capital required before a beginning could be made seemed to be a damper upon the acceptance of the scheme, which, however, will be still further discussed at a February meeting.

The Leamington fruit growers seem to be advancing a little farther, and have agreed upon a scheme which seems to involve less outlay, and we give a report of it, which appeared in the Leamington Post:

A meeting was held at Ruthven to consider the constitution of the Erie Fruit Association. The aim of the organization is to establish three fruit depots, one at Leamington, one at Ruthven, and one at Kingsville. The fruit from these respective districts is to be graded and packed at the stations, and sold to the best advantage, so as to prevent, as far as possible, the fruit in the section from competition with other fruit grown in the Erie district. The constitution provides for the election of a president, vice-president and two directors from each station. The sales at each station to be under the control of a manager, under the supervision of the directors.

The by-laws provide that the members shall not be allowed to sell or solicit sales of any fruit except culls, or fruit not acceptable to the company, but to deliver their fruit at the company's packing house, where it will be sold to the best advantage, the member receiving credit for his fruit, at the average price paid on that day for first, second or third-class fruit. The capital stock to be $5,000, divided into 1,000 shares of $5 each. Each member of the association is expected to take one or more shares, although it will not be compulsory. The limit to any one member will be 10 shares or $50. A guarantee dividend of ten per cent. will be given to all shareholders, which will be a first charge on the expenses. One-third of the selling price of fruit will be retained until the close of the season, out of which the dividend above mentioned will be paid and all other costs of selling, salaries to secretary and treasurer, traveling expenses, etc., and the balance will be distributed among the members, in proportion to the number of bushels or baskets delivered. Parties desiring to take stock must first become members by payment of one dollar. The only cost to the shipper will be actual cost of selling, and the dividends to be paid on $5,000 stock. If $5,000 worth of fruit is sold, the cost to the grower who is a member of this society will be only 1 per cent. in addition to actual expense of selling.

Reckless Fruit Sales

THE only justification for the present reckless method of shipping our choice fruits on consignment, to be sold at whatever prices the buyers choose to offer, is their perishable nature. While we were negotiating a sale our fruit was rotting, and we were forced to take any offer rather than lose it all. But this method of sale has been taken advantage of by the buyers, until it has become ruinous to the grower. In some cases they agree not to bid against each other, but rather that one one should buy and divide up, in which case there is little hope of getting value for our fancy stock, no matter with what care we pack. How shall this be remedied? The only way is by the making of sales at the point of shipment, or at some storage house where the fruit can be held for the grower until sold.

Cold Storage Stations Will Help Sales

NOW here is the chief advantage of the cold storage stations to the fruit grower. By storing at a proper temperature he can hold his fruit long enough to make sale for it, and thus have something to say about its value. Apples may be stored for almost a year, if need be, and therefore there is little more excuse for shipping them on commission than there is groceries or dry goods. With pears almost the same thing is true, and with peaches and pears to a lesser degree.

Of course it is foolish to store No. 2 stock. The less expense one puts upon it the better, and the sooner it is converted into money the better. But with No. 1, or fancy stock, the case is quite different. It is worth the added expense of storage and of seeking suitable purchasers.

Cold storage houses, built on the most approved plan, have sprung up all through the section from Rochester to Buffalo, says the Rural New Yorker. It is not unusual to find a town with 300 or 400 inhabitants with a cold storage house holding from 40,000 to 50,000 barrels. This is one of the greatest blessings to the grower. It relieves the market from the influx of fruit early in the season, and prolongs the period when the fruit can be put on the market. By the aid of refrigerator cars it can be sent to parts of our country and at seasons never possible to reach before. The men who control these depots are searching out sections where they can place the fruit, and though they do it for their own profit, the benefit is received by the grower as well.

Germany a Good Apple Market

FOR some years past a few Ontario apple growers have been shipping to Hamburg and with considerable encouragement. This season the results have been more than usually satisfactory, Baldwins, Russets, Greenings, Ben Davis and Spys selling at from 20 to 28 shillings, with strong demand.

The first car load of apples from this continent to Germany went forward in 1896. It is stated that almost half as many apples have gone to Germany in the year 1903 as during the whole of the years previous. From 1896 to 1903 a total of 489,000 barrels went to Hamburg.

Laying Out an Apple Orchard

NOW that plans are being made for spring planting of orchards, it is well to consider details and have everything in readiness. Mr. W. C. Abbott, of Hudson Heights, Que., writes:

Sir: If you had to plant in the spring an apple orchard of 1,000 apple trees, how would you proceed in order to have the work done in the best and most expeditious manner possible?

If the ground has been either summer fallowed, or cultivated with corn or potatoes

the previous year, and then fall plowed, the soil will be in beautiful condition for planting in spring, and the task will be an easy one. If the land is at all inclined to be heavy this previous preparation is all the more necessary, both for the ease and speed in planting and for the after growth of the tree. If conditions are favorable, two men should lay out the ground and plant one thousand apple trees in a week or ten days, but if unfavorable it would take much longer.

Should the trees arrive before the ground is quite ready to receive them, dig a trench about a foot deep, more or less, and stand the trees in it close together, and then fill all about the roots with fine earth. Here they will be safe until you are ready to plant. With a lot of 1,000 trees it would be best to heel them in this way, even if the ground is ready, and take out a few at a time as required.

Evans, of Ohio, gives directions for planting, as follows, which is essentially the plan we have always adopted:

If the plot lies facing a road or lane, make that the basis from which to lay out the rows, running them at right angles away from this base. A strong wire about two hundred feet long is an excellent instrument to use in staking out. File shallow notches in it as far apart as you wish the trees to

FIG. 1. SQUARE PLANTING.

stand—say twenty feet for peach, pear, plum or cherry and thirty feet for apple—then stretch it out, sticking a peg at each notch, which can be designated by small rags for the sake of plainness. If the orchard is wider than the length of the wire, prolong the staked line by restretching the wire from the end of the incomplete row. By taking care to have a correct start and make the beginnings of rows at regular intervals on the base line, all the trees will line up, no matter whether the point of view commands a straight or oblique squint, as seen in Fig. 1. Another mode of arrangement which, under certain conditions, may be desirable, is the quincunx planting shown in Fig. 2. But the most economical, beautiful and convenient arrangement is the hexagonal. Every three trees form an equilateral triangle, and each tree, except the outside ones, stands in the centre of a circle described by six others standing at equal distances around it.

The land prepared and staked, you are ready to dig holes. When ready to pull up the tree peg for this purpose, mark its position by using a piece of 1 x 4 pine four feet long, in the center and ends of which notches are cut. Place the center notch at

FIG. 2. QUINCUNX PLANTING.

the tree peg and stick other pegs at the end notches. Then pull up the tree peg, dig the hole, and when ready to place the tree, lay the board with the end notches fitting their respective pegs and locate the tree at the center notch. This is a simple and good way.

As you plant, dip the roots of each tree into a bucket of water, then place it in the hole with the budding scar a little below the surface of the ground. Work rich top soil, well-fined, all around the rootlets, pressing it firmly with the hands, and take care to lay each root according to its natural bent. Humor all idiosyncrasies of roots. Cut off broken or bruised roots, making the slope

of the cut on the underside. When enough earth has been pressed into place to enable the tree to stand, use the shovel for the rest, watching to keep the tree in position with regard to line and perpendicular position. If out of plumb at all, lean it toward the direction of prevailing winds. As the earth goes into the hole, stamp it just as though you were setting a fence post, and I would emphasize this point, for it is important enough to mean success, or failure. Thus laid out and the trees carefully selected and

FIG. 3. PLANTING HEXAGONAL.

planted, your orchard will be a thing of beauty and a source of satisfaction. But do not let it grow up in weeds and grass. Cultivate it like your corn field, and keep the trees clean by eternal vigilance.

A New Tree Protector

LAST year and the year previous the Expansive Tree Protector was pushed most vigorously by the introducer. We ordered a lot for trial among our fruit stations, and nearly all our experimenters complained that the poison which was applied on the felt underneath the protector had an injurious effect upon the bark. Perhaps if the poison were omitted it would be equally effective. The Arndt Tree Protector takes warning and advises no poison. It is not very costly, about 10 cents a foot, and if applied in October and kept in place until June, it should keep down that troublesome female canker worm, which transforms in the ground, and being unable to fly, can only reach

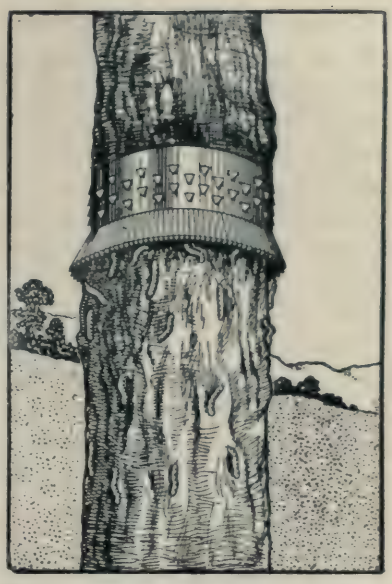


FIG. 2748. TREE PROTECTOR IN PLACE.

the foliage by creeping. Possibly it may be useful for some other insects which have no wings, but like most other novelties, no doubt much more is claimed for it than it really merits.

The band is well shown in place by the accompanying cut, Fig. 2748, and a section of the band in Fig. 2749. It is made of brass, and comes in coils of twenty feet, neatly and securely packed in boxes, with brass fasteners and cotton wadding, and with full directions for use on each box.

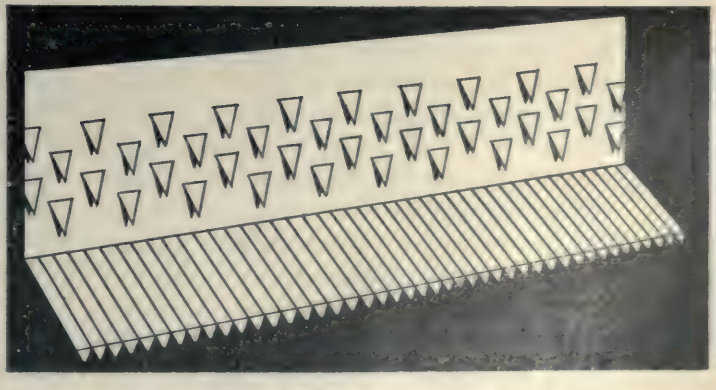


FIG. 2749 SECTION OF TREE PROTECTOR

A Canadian Power Sprayer

WE are always glad to notice any invention which originates in Ontario and is intended for the benefit of Ontario fruit or flower growers. Let it be, however, fully understood by our readers that what is said of such untested novelties must be more or less based upon the statements either of the introducer or of the originator. Just now we are in receipt of a letter from Mr. W. R. Liddy, principal of the high school at Port Dover, commending a power sprayer of Canadian invention, and we think the inventor is on the right line, for the cheapest power must be that furnished by the turning of the wagon wheel. The following is the letter:

Sir: In your issue of February you state that power sprayers run by a sprocket chain from the wagon wheel have been imperfect, but that an Illinois man has made some improvement. As a constant reader of your valuable journal, I do not think you would pass over, had you known, a Canadian, my fellow-townsman, Mr. F. A. Perkins, who has invented and patented a machine which is a credit to Canada. It has a double acting cylinder pump with air chambers. To each pump is attached three lines of sprayers, each capable of throwing spray twenty-five feet or more. The whole mechanism is simple and complete, and at a price within the reach of all. It will be placed in the market this year, and those interested should correspond with Mr. Perkins.

Give Canada Her Due

That Canada should now assert herself in the great markets of the world no Canadian will dispute, but hitherto our fruit growers have not sufficiently realized the advantage of using the name CANADA as a trade mark upon our export fruit packages. The Fruit Marks Act is giving Canadian fruit a name for reliable branding such as is given to no other country in the world; a name which is every year gaining ground in the confidence of foreign buyers. This means a complete change in our methods of sale, and a sharp advance in values for; as our XXX, or No. 1, brand gradually becomes known, foreign buyers will no longer hesitate to purchase in large quantities f. o. b. at points of shipment in Ontario, and the competition will be keen for our XXX goods.

Mr. W. Barlow, of Salford, England, writes as follows under date of February 2:

Sir: In conversation with Mr. John Parkinson, of Portage la Prairie, who has been on a visit to Manchester, it was arranged I should write you upon the following matter, which had come under his notice, viz., the necessity of all Canadian produce being branded and labeled in and outside with the word Canadian apples or whatever kind of produce may be sent to this country. At the present time very large consignments are sent over, and is known in the English markets as of American origin, though less than formerly. There is still a great necessity for having such produce made clear as to its origin. If asked where they come from the reply invariably is, They are American. When I visited your country I often mentioned what was in my mind should be done, but it was not thought of much importance at the time. Mr. Parkinson thinks the time has arrived when the fause naming of Canadian fruit should be corrected.

This matter is placed with you to take what action appears in your judgment necessary.

The above particulars were sent to the High Commissioner at London, who replied that the matter was all important for Canadian growers, and presume he will move in the matter. If supplemented from your side something should be accomplished.

The Transportation Committee

A MOST important meeting of this committee of our association was held at the Walker House, Toronto, on Tuesday, the 16th day of February. There were present, W. H. Bunting, St. Catharines; Alex. McNeill, Ottawa; E. D. Smith, Winona; H. H. Dawson, Toronto; D. W. Wilson, Seaforth; R. J. Graham, Belleville; C. L. Smith, Toronto, editor of the Sun, and the editor of this journal. The vital importance of the question was shown by the live interest taken by each member, all of whom were personally engaged in shipping on a large scale, and had many well established grievances to present to the Railway Commission, such as the following:

(1) Excessive freight rates.

(2) Discrimination in rates (a) between individuals or firms, (b) between long and short hauls, (c) between places or territories, (d) between commodities.

(3) Want of proper accommodations at the stations.
(4) Delays in transmission of fruit.
(5) Scarcity of cars.
(6) Want of facilities for tracing cars.
(7) Delays in settling claims.
(8) Refusal to give special facilities for fruit shipments, such as (a) "decking" cars for baskets, (b) the use of ventilated cars, (c) the use of refrigerator cars, (d) the use of frost-proof cars, or (e) the use of heated cars.
(9) Refusal to give a receipt for the number of packages delivered by the shipper.
(10) Difficulties with express companies.
(11) Demurrage charges.
(12) Want of competent or sufficient help at stations, etc.

The following are some of the resolutions passed in committee, embodying some of the many points which are to be laid before the Railway Commission:

EQUIPMENT.

Resolved, That the Ontario Fruit Growers' Association, through this committee, petition the Railway Commission to at once take steps to compel the railways of Canada to provide proper equipment for the carriage of perishable freight, such as fruit, during both summer and winter, viz., good clean ventilated cars, or refrigerator cars, well iced, during summer, and heated or frost proof cars during winter, and of such a make as to insure the arrival of the goods in as good condition as receipted for, reasonable allowance being made for ripening; and that railways be compelled to provide sufficient equipment for such service within one week from shippers' request at any point where they have freight stations, and that the employes be compelled to keep a record of the temperature maintained in such cars at least once every twelve hours, and that thermographs be carried, when furnished, as a check on said operators, to see that that temperature is reported correctly, and that tracers be sent after each car, with the privilege to the shipper of being provided with information at least once each day by the local agent of the location of such car in transit.

INSPECTION.

Resolved, That the inspectors under the Fruit Marks Act at Montreal and other Canadian points should be empowered to prevent vessel owners from placing fruit in parts of a ship not provided with mechanical ventilation; also that the Dominion Department of Agriculture be requested to place thermographs in all compartments in which fruit is carried, as well as on the deck of the vessel, as a check; and further, that the chief inspector in Great Britain be required to return to the department a statement of the record shown by the thermographs.

DELAYS IN TRANSIT.

Resolved, That in view of the intolerable delay in the transit of perishable products to and from interior points involving heavy losses, we would urge upon the railway such regulations as will ensure the carrying of these goods with all dispatch practicable, making a time limit for definite distances.

INTOLERABLE DELAYS IN SETTLING CLAIMS.

Resolved, That the Railway Commission be requested to take immediate action to enforce all railways doing business in Canada to examine and report definitely on all claims presented for delays, damages or overcharges to perishable freight, within one month from receipt of such claim when presented with the necessary documents in support of such claims.

GRIEVANCES.

In discussing the above many instances of injustice to shippers were brought out, such, for example, the unfair discrimination between rates on apples and pears, by which a few boxes of pears for export put in a car of apples largely increases the rate on the whole car; or between the rates on flour and apples, the former being carried to Liverpool for 38 cents a barrel and the latter for 90 cents. Even this would not be so much of a grievance if the apples were given su-

perior storage, but when both are stored in the same hold, and the flour is given the preference in the handling, the whole is a manifest injustice to the fruit grower. The miserable cars often furnished fruit growers is another just ground of complaint. Fruit easily takes up bad odors, and when cars in which vile smelling freight has been carried are furnished for carrying fruit, the flavor is badly affected. The intolerable delays are a great grievance to fruit growers. One-half our fruit should go by freight which much now go by express at excessively high rates, just because of the slow service by freight. Local shipments to Toronto from points about 50 miles distant do not arrive until the second day after shipment ; they ahe often weeks going from the Niagara district to Palmerston, and about 15 days going to the Sault. These are only a few of the many points brought up, all of which will make a strong case when presented before the commission.

Formation of Horticultural Societies

MR. E. D. ARNAUD, of Annapolis, N. S., writes:

Can you give me some practical directions that will be of assistance towards the establishment of a local horticultural society ? I see that there are several flourishing local societies in Ontario, aided, I understand, by government grants, but so far as I know nothing of this kind has yet been attempted by the Nova Scotia government. If it is not too much trouble I would like you to tell me the steps usually taken when a new society is started in your part of the country.

In reply we cannot do better than publish the by-laws adopted for our affiliated societies, which have worked out so well wherever there has been a live set of officials.

These affiliated horticultural societies are formed more closely in accordance with the purpose and intent of the Agriculture and Arts Act than any others, having in view the interests of amateurs and of the members generally rather than of the few professional florists of the locality.

Encouragement is given to the holding of monthly meetings, the frequent delivery of lectures on horticulture, the distribution of horticultural literature, in particular the Canadian Horticulturist, the free distribution of seeds, plants and bulbs, and the holding of horticultural exhibitions.

BY-LAWS

For Affiliated Horticultural Societies.

This society, known as the .. .. ..

7. Each member shall be given by this society a membership in the Fruit Growers' Association of Ontario. A. & A. A., Sec. 9, S. S. 2, sub-div. (b), 1895.

8. There shall be procured for each member, trees, shrubs, plants, bulbs or seeds of new and valuable kinds, in each year, sufficient in quantity to exhaust the funds of the society after allowing for necessary working expenses. A. & A. A., Sec. 9, S. S. 2, sub-div (c), 1895.

9. The annual meeting shall be held at half-past 7 in the evening of the second Wednesday in January, when there shall be elected a president, a first vice-president, a second vice-president and not more than nine directors, who together shall form the Board of Directors. At this meeting the society shall also elect two auditors for the ensuing year. A. & A. A., Sec. 7, S. S. (e) 1895.

(a) At this meeting only those members who have paid their subscription for the ensuing year shall be entitled to vote. A. & A. A., Sec. 4, 1896.

(b) At this and all subsequent public meetings ten members shall constitute a quorum. A. & A. A., Sec. 3, S. S. (ee) 1896.

10. The Board of Directors at its first meeting shall appoint a secretary and a treasurer, or a secretary-treasurer. A. & A. A., Sec. 7, (f) 1985.

(a) Five directors shall constitute a quorum for the transaction of business. A. & A. A., Sec. 14, 1895.

(b) Subject to these by-laws, the directors shall have full power to act for and on behalf of the society; and all grants and other funds shall be expended under their direction. A. & A. A., Sec. 13, 1895.

(c) At each annual meeting the directors shall present a detailed statement of the receipts and expenditures for the preceding year; and also a statement of the assets and liabilities of the society at the end of the year, certified to by the auditors. A. & A. A., Sec. 11, S. S. (c) 1895.

11. The said statement shall, when approved by the meeting, be placed on permanent record in the books of the society; and such portions thereof, together with what is required by subsection (a) of Sec. 11, A. & A. A. of 1895, shall be sent within one month to the Department of Agriculture. A. & A. A., Sec. 12, 1895.

12. These by-laws or regulations can not be altered or repealed except at an annual meeting or at a special meeting of the members of the society, of which two weeks' previous notice has been given by advertisement. A. & A. A., Sec. 13, 1895.

Education in Floriculture

TO succeed in any business, in these days of close competition, one needs to add business tact and originality to a thorough knowledge of the details of ordinary practice. This latter is from a man in the business, but often jealousy of prospective competition keeps out the young aspirant from the privileges he desires to have. Mr. A. S. Gilmore, Cote St. Paul, Que., who has for some time been carrying on a factory with his brother, has decided to give it up to become a florist. He says: "I think it is healthier work, and I am very fond of flowers. I have had no experience whatever, except in my own garden during the summer, where I have had great success. Is there any school in Canada where they give instruction in the raising of flowers, and in greenhouse work; and are there any spring and summer terms. Do you think the florist business profitable for a young man, etc." Now, suppose we answer the last question first, and we would say yes and no both; for profit in any business depends far more upon the man than upon the business. One man will make money where another man will starve to death. A few men have made fortunes out of growing roses and carnations, and many men have failed; a large percentage of the men who open out stores in great cities sink their investments, while a few make fortunes; a neighbor, who began a village milk trade without capital, has by industry and enterprise secured a large and profitable business of several thousand dollars a year.

The best place to learn to be a florist is with a florist, providing he would give you a chance to learn details of all branches; but for a general knowledge of floriculture, the construction and care of a greenhouse, and much general information essential to an educated business man, a course at the Ontario Agricultural College, Guelph, is almost indispensable.

Mr. Wm. Hunt, superintendent of greenhouses, is a thoroughly trained gardener, and his long experience will give a young man much valuable information which he could not get from the ordinary practical

florist. For details of terms, write Mr. G. C. Creelman, B. S. A., president of the O. A. C., Guelph.

FIG. 2750. MR. G. A. PUTNAM, B.S.A., Superintendent Farmers' Institute.

SINCE our work is so closely connected with the farmers' institutes, our readers will be pleased to have an introduction to Mr. George A. Putnam, B. S. A., who has recently taken up the work of superintendent of Farmers' Institutes for Ontario. Mr. Putnam was born in Elgin County in 1869, and spent his early years on his father's dairy farm near Aylmer. He was educated at the Aylmer High School and at the Forest City Business College, London, and from the latter institution became in 1890 secretary to the Agricultural College. While at the college he took up the regular studies and received his degree in the spring of 1900.

Mr. Putnam is most familiar with details of the organization of institutes, for under Dr. Mills he managed all the details of the work when the Ontario Institute branch was first organized.

Nova Scotia Fruit Growers' Annual Meeting at Bridgewater

NEARLY a hundred fruit growers met at Bridgewater on the 27th and 28th of January and conducted an animated discussion on the fruit interests of the province. A noticeable change was the retirement from the presidency of Mr. J. W. Bigelow, of Wolfville, who for twelve years has so ably filled the position. A resolution was unanimously passed expressing the high esteem in which he was held by the members.

STANDARD VARIETIES OF APPLES.

At this meeting our vice-president, Mr. Alexander McNeill, of Ottawa, gave good advice to inexperienced orchardists. He advises (1) to select varieties combining many good qualities; (2) to avoid novelties, because they are seldom permanent; (3) to watch the tree agent and resist him when he advises little planted varieties; (4) to cater to your market, and if distant to plant good shipping kinds, mainly good winter varieties; (5) to consider which of these will succeed best under the local conditions of one's own farm. Mr. McNeill had written to six apple exporters representing firms which operate in all parts of Canada, asking them separately to name the best paying varieties of apples, taking one year with another, from the exporter's point of view. All named the Baldwin, five the Spy, four the Golden Russet, four the King, four the Ben Davis, four the Canada Red, three the Mann, two the Cooper's Market, one the Hubbardston. Prof. Macoun suggested that records of individual trees as to age, bearing, etc., be kept each year, thus finding out what trees give the best results; a number of gentlemen, representing the various fruit districts, were appointed to keep these records.

APPLE PACKING.

The use of the barrel and the box were discussed, and Inspector Vroom gave full details for packing in barrels, which are the same as commonly practised. "The 10 per cent. of poorer quality," he said, "are allowed for the purpose of covering any accidental putting in of poor quality, and not to allow packers to pass off their poor trash."

For boxes Mr. W. A. McKinnon said that only the very finest quality should be packed in them, and in this we believe he is quite correct, for we have experimented with a carload of XX stock in barrels and in boxes, and the former brought the best returns. We are glad to observe that the Nova Scotians at this meeting agreed to adopt the same sized box as we have adopted in Ontario, viz., 10 x 11 x 20, inside measure.

BOASTING THE PROFITS OF ORCHARDING.

The Nova Scotians always have a way of showing up great results of apple growing. Recently Mr. J. W. Bigelow has circulated an article giving an account of the wonderful apple yield of the Annapolis Valley and the wonderful profits received by the growers; and here at this meeting Mr. R. J. Bridgewater, of Bridgetown, gave an account of a bearing orchard of 3½ acres for four years, showing a net profit of $2,400 for the period.

It is rather a curious feature of the meetings of fruit growers that they always delight in booming their business by telling big stories of immense profits, which are exceptional, and by suppressing the stories of poor prices and frequent losses. In this way they encourage so many to grow fruit that the prices come down on account of competition. From some such reason, for example, plums last season were so abundant that they were not worth gathering. Now men of no other avocation adopt such policy. Fancy the stove makers advertising the profits of stove making, or the dry goods merchant the profits of his business! He would not be so foolish. We do not see why the fruit grower does it unless either he wants to sell out his fruit farm, or because he is interested in some nursery for the sale of fruit trees. No doubt Nova Scotia people want buyers for lands in the "great Annapolis valley."

THE NEW OFFICERS.

For 1904 the president of the N. S. F. G. A. is Mr. P. Innes; vice-president, Mr. R. S. Eaton; secretary, S. C. Parker; assistant secretary, J. H. Cox; treasurer, S. W. Munro.

TRANSPORTATION.

This subject, so vital to the interests of fruit growers, was taken up with great interest. An instance of gross injustice was mentioned in the case of the discrimination between apple and flour, the former costing 27c. a barrel to Halifax and the latter 16c. The poor service on both railway and steamer was also discussed, and a committee, which included the president, vice-president and secretary, was appointed to act in harmony with other organizations in obtaining improved service and fairer rates.

QUARTERLY MEETINGS.

More frequent meetings were advocated by Mr. R. W. Starr and opposed by others. Finally a resolution was passed asking the executive to press for an increase of the annual grant from $300 to $500, with the object in view of holding quarterly meetings in various parts of the province.

This is the opposite of the present policy of our association, which is considering the wisdom of centralizing the meetings of the body and sending experts to subordinate meetings of farmers' clubs in every district.

BLENHEIM PALACE AND PARK

BY THE EDITOR.

THE student of landscape gardening in Ontario can learn many useful lessons from the fine old parks of England. There you see grand old elms, oaks, lindens and other trees in their full development of beauty; the carriage drives approach the mansion in graceful curves, over artistic bridges, with fine vistas opening at intervals; and the open green sward of large extent gives interest and variety. Such a park is that at Blenheim, which was visited by the writer in the summer of 1903. It is situated about eight miles from Oxford and close to the town of Woodstock, and contains one of the finest mansions in Great Britain. According to the Economist the forest of Woodstock many years since contained a house to which Alfred the Great often retired, and which was built by Henry I. Henry II. often resided at this retreat in the forest of 22,000 acres, and here was hidden his favorite, "Fair Rosamond." The estate was at length granted by the crown to John Churchill, first Duke of Marlborough, and Parliament, as a token of gratitude for services in the wars of the Low Countries, granted a sum of £240,000 with which to build a mansion on the estate. Designed by Sir John Vanburgh, the palace—for such it is—is constructed in the most sumptuous style. Among the more conspicuous features are the Corinthian portico, which is beautifully proportioned, the great hall, 67 feet in height, and the library, a magnificent chamber, 184 feet by 31 feet 9 inches. In this last is a beautiful statue of Queen Anne, by Rysbrack, while some of the finest paintings by Rubens, which were presented to the great duke by the States of Holland adorn the walls.

FIG. 2751. BLENHEIM PALACE.

The park is very extensive, and contains a large sheet of water comprising 132 acres, crossed by a massive bridge of stone of such imposing dimensions that the centre arch has a span of over 100 feet.

FIG. 2752. A VIEW IN BLENHEIM PARK.

Unfortunately our visit was not on the right day of the week for admission to the interior of the palace, but the gardener showed us the dairy with great pride; and, while we waited at the porter's office, we had a good view of the Duchess of Marlboro, formerly Miss Vanderbilt, of New York City.

Orchard and Fruit Garden

FIRE BLIGHT

BY PROF. F. C. HARRISON, O. A. C., GUELPH, ONT.

THAT species of blight which is sometimes called the "fire blight," frequently destroys trees in the fullest apparent vigor and health, in a few hours turning the leaves suddenly brown as if they had passed through a hot flame and causing a morbid matter to exude from the pores of the bark, of a black ferruginous appearance. This happens throughout the whole course of the warm season; more frequently in weather both hot and moist." So wrote William Coxe in a book on the "Cultivation of Fruit Trees," published in 1817, which is said to be the oldest American book on fruit culture.

Nearly forty years before this we have a record of the disease mentioned in a letter written by one, William Denning, who first saw the disease in the highlands of the Hudson in 1770. He described the disease fairly well and thought it was due to a borer in the trunk of the tree.

From 1817 almost to the present time we find in horticultural literature many theories as to the cause of the blight. It would be tedious to give an account of all the different theories put forward by various writers during this period. The most diverse views were entertained as to the cause of the disease, and it was a constant topic for discussion in the horticultural journals and societies. These discussions were so wearisome and so barren of results that the Western New York Society resolved that the subject should not be discussed at their meetings unless some one had something entirely new concerning the disease to communicate.

Amongst the numerous theories put forward to explain the cause of pear blight, we may mention the following:

1. Insects.
2. Rays of the sun passing through vapors.
3. Poor or deleterious soil.
4. Violent changes of the temperature of the air, or the moisture in the soil.
5. Sudden changes from sod to high tillage resulting in surfeit or overplus of sap.
6. The effects of age; old varieties being most subject to it.
7. Autumn freezing of unripe wood, which engendered a poison which destroyed the shoots and branches in the following season.
8. Electricity, or atmospheric influence.
9. Freezing of the sap, or freezing of the bark.
10. The heat of the sun, assisted by raindrops acting as lenses causing the scalding of the sap and bursting of the cells.
11. Fermentation of the sap.
12. The absence of certain mineral matters in the soil.
13. An epidemic transmitted from place to place by the air.
14. Fungi.

Each of the above theories was sustained by various writers, and it may be of interest to note that Henry Ward Beecher was an advocate of the theory that the cause of blight was due to the autumn freezing of the unripe wood.

A. J. Downing, the distinguished author of "Fruits and Fruit Trees of America,"

applied the name "frozen sap blight" to the disease. His theory was that the disease was due to the freezing and thawing of the sap. The sap thus lost its vitality, became dark and discolored and poisonous to the plant.

Thomas Meehan, editor of the "Gardeners' Monthly," supported the idea that fungi was the cause of the disease; but no tests were applied to prove that the inoculation of these fungi into healthy trees would cause the disease.

It was not until the year 1878, when W. T. Burrill, the professor of botany in the University of Illinois, announced to the State Horticultural Society the discovery of bacteria, apparently connected with the disease. Burrill also proved that the disease was infectious and could be communicated to healthy limbs by inoculation, using the gummy exudation from an affected tree as a virus. Not only was he able to produce the disease in pears, but also in apples and quinces. Dr. J. C. Arthur, botanist of the New York Experiment Station, subsequently confirmed Prof. Burrill's results and thoroughly established the fact that a certain species of micro-organism, named by the discoverer *Bacterium amylovorum,* or the starch destroying bacterium, was the sole cause of the disease.

Geographical Distribution.—This disease is peculiar to North America. So far it has never been recognized in Europe. Professor Budd, of Iowa, who is familiar with the disease as it occurs in North America, has inspected the orchards of Europe and states that no trace of fire blight of pear or apple trees can be seen in Europe. It is also unknown in New Zealand and Australia. In North America the blight extends from New York to California, and from the northern counties of Ontario to Texas. Dr. Beadle, in a sketch of the history of the disease in Ontario, states that "in the early days of fruit growing in the Niagara district we had no pear tree blight nor apple blight. With the advent of what people termed grafted fruit there came, after a few years, 'blight' on the pear tree." By the year 1840 it had spread considerably.

N. J. Clinton, of Essex County; S. Hunter, of Oxford; E. D. Smith, of Wentworth; Stone and Wellington, of Welland; R. Hamilton, of Argenteuil, reported its presence in their respective counties about 35 years ago. The colder parts of the province have suffered as severely from the disease as the more favored districts. The orchard of the Dominion Experimental Farm at Ottawa has been attacked, and the 140 Russian varieties of apples cultivated there have suffered severely. In warmer districts, however, the disease has been much more severe. Whole orchards have been completely destroyed in the State of Texas, and certain pear growing districts in that State have been practically ruined by this parasite.

Losses.—No statistics are available to give us an idea as to the amount of loss to fruit growers from pear blight, but a few references to losses by this destructive disease will help to give us an appreciation of the subject. Coxe in 1817 reported that he had lost upwards of fifty trees in twenty years. In the years 1826, 1832 and 1844 there was an increased prevalence of the disease, and few pear orchards escaped without partial or total loss of many trees, and some orchards were quite destroyed. Downing called it the "monstrous malady of the pear." Lyons stated, as the opinion of many cultivators in the State of Michigan, that "the pear tree cannot be grown with financial success on account of the blight." Hallam, in 1882, reported that "in Southern Illinois pears have failed, utterly failed, so that none are now cultivated for market. The blight has destroyed the trees, branch and root." While A. Noice, of the same State, doubted "if one-tenth of

the pear trees that are planted lived ten years on account of this destructive agent." E. H. S. Dart stated that the severities of winter were not so much to be dreaded as the ravages of blight. He had, in 1874, one to two thousand trees affected. Dr. P. A. Jewell, in 1876, lost 10,000 Tetofsky apple trees by it. Bailey, of Cornell, declared that fire blight was undoubtedly the most serious disease with which the quince grower has to contend. It was the same disease which was so destructive to pear orchards in certain years and to certain varieties of apples, particularly the crabs. Selby, of Ohio, reported that the disease ranked among the most destructive known to the orchardist in his State. Chester, of Delaware, announced that pear blight was of unusual severity during the season of 1901, and caused much alarm because of its rapid spread through the orchards of the State. In 1895 its ravages were most severe on apple trees in the vicinity of Hamilton and Burlington Bay. J. Craig gathered information as to the character of injury of the disease from fruit growers throughout this province, and a number of these state that the injury was very severe.

These citations are enough to show that the disease is of special economic importance and greatly dreaded by many fruit growers.

FIG. 2753. A BLIGHTED ORCHARD.

SYMPTOMS.—(See Fig. 2753). The first indication of fire blight is seen either in the browning and subsequent blackening of the leaves or of the young twigs or of young tender shoots. When the twigs or shoots are the principal parts affected the disease is spoken of as twig blight. Pears show the presence of the disease more frequently by the blighting and blackening of the leafy tufts of the spurs, and show it especially by the darkening of the blossom clusters on the larger branches; while later, the branches themselves become blackened. The progress of the disease is always downward, an inch or more each day, depending upon the season, until the larger limbs are infected. In the more susceptible varieties it spreads more quickly, involving the whole tree, but in the more resistant varieties the progress of the disease is not so fast. When the disease is active the bark of the diseased branches cracks and a thick, blackish, gummy fluid exudes, and later the affected bark becomes hardened, dry and shrunken. The disease occasionally appears on the larger branches and trunks of fruit trees when these have been bruised or otherwise injured, when its appearance is similar to the injury known as "sun burn" or "sun scald." This disease of the trunks or larger branches is sometimes spoken of as "body blight" or "rough bark." The inner bark and cambium layer of the limbs and trunk are the most important parts of the tree killed by the blight. Instances are known

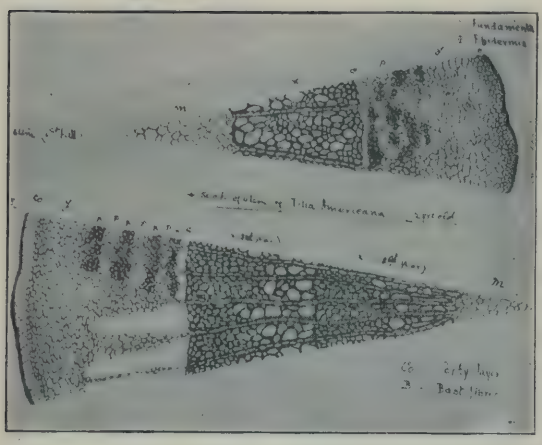


FIG. 2754. DISEASED TISSUE—MAGNIFIED

of its attacking the fruit, producing watery unlers, accompanied by brown discoloration and decay. The disease may be known by its peculiar odor, said by some writers to resemble putrefaction.

When the disease is in progress the discolored blighted portion blends gradually into the color of the normal bark; but when the disease has stopped there is a sharp line of demarcation between the diseased and healthy portions. (Waite.)

MICROSCOPIC APPEARANCE OF THE DISEASED TISSUES.—(See Fig. 2754). The most conspicuous change in the tissues, affected with the blight, is the disappearance of the stored starch, and on account of this peculiarity the organism has been named the "starch destroying bacterium" *(Bacterium amylovorum)*. The germ penetrates from one cell to another and produces a gummy or mucilaginous matter which is found on the exterior of the affected parts. The microbe is found, as a rule, only in the inner bark and in the actively growing tissues (called the cambium, which produces wood on the inner side and bark on the outer side). The organism is unable to grow in tissues that are lignified or woody.

LIFE HISTORY OF THE PEAR BLIGHT GERM.—The organism which produces the disease is a small motile bacillus which increases with great rapidity in the succulent parts of affected trees. The microbe is of microscopic size, so small that 25,000 placed end to end would only measure an inch. They are able to live and multiply in the nectar of the blossoms, from whence they are carried to other flowers by bees and insects which visit the blossoms for honey and pollen. From this locality the germs extend into the tissues and then downward into the branches by way of the inner bark, girdling the limbs and causing a large amount of damage. The blight germ also gains entrance to the plant through the tips of growing shoots, thus producing twig blight. The organism is not killed by the winter frosts, but lives in the bark in a dormant condition until spring. As soon as the plant tissues became gorged with sap in the spring the microbes, which have remained alive all through the winter, start to grow and extend into the new bark. This new blight which develops in the spring can be recognized by its moist and fresh appearance from the blighted dead and dried bark of the previous summer. A large amount of gum is exuded from the affected bark and runs down the tree and attracts to it bees and other insects which carry the microbes to the early blossoms, and from these first flowers it is carried to others, and thus the disease extends.

The germ has never been discovered in the soil, although careful search has been made, hence the importance of recognizing the winter form of the disease, for if these affected portions of the tree are cut out and destroyed the pear blight question is solved, for without the microbes there can be no disease.

CONDITIONS AFFECTING THE SPREAD OF THE DISEASE.—Fire blight differs in severity in different localities, and there are a num-

ber of conditions which affect the character and progress of the disease.

Every tree of the pome family is subject to the blight, but pears and quinces are more susceptible than plums and apples. The mountain ash, service berry and hawthorn are frequently diseased, but not to such an extent as the first named trees. There is a difference in the susceptibility of varieties. Thus among pears, Clapp's Favorite, Flemish Beauty, and Bartlett, are more liable to the disease than Keiffer and Duchess, and amongst apples the crab varieties are the least resistant.

Climatic conditions influence the disease; warm, moist weather with much rain favor it; whilst bright, dry, sunny weather tends to check it.

High cultivation, rich soil, heavy manuring, free use of fertilizers, heavy pruning, or any other treatment which has a tendency to induce new and succulent growth, favors the disease, as the bacteria grow with far greater rapidity and penetrate more quickly from cell to cell when the tissues are gorged with sap. Insects are more partial to young succulent shoots and leaves, and the bites and punctures of such insects, whose mouth parts may be contaminated with pear blight germs, often serve to infect the tree.

It is thus manifest that healthy, thrifty, vigorous, well fed and well cultivated trees are more liable to the disease than others, and hence the severity of an attack of fire blight may be lessened by conditions which are under the control of the grower.

TREATMENT.—The treatment of fire blight is of two kinds, that which is designed to put the tree in a condition to withstand the attack of the blight microbe, and those methods which aim at the extermination of the casual bacterium. Unfortunately all methods which are used for hindering the attack of the microbe consist of restraining the full development of the tree, and hence any such system of procedure should not be followed unless an orchard is very badly attacked.

High cultivation, winter pruning and other conditions already mentioned as predisposing trees to blight should be aboided, but the trees should be allowed to ripen the wood, and in order to do this the fruit grower must use any method which will check the amount of moisture in the soil, for instance, by the growth of a clover crop.

The fire blight organism cannot be exterminated by spraying, as the microbe lives in the tissues beneath the outer bark, and it is impossible to reach it with any spraying solution, for unless the bacteria come into contact with the germicide spraying is ineffectual.

There is therefore but one remedy, to cut out and burn the affected parts of the tree. It is very necessary when cutting out a diseased branch or twig to cut well below the discolored portion, as the bacteria are in teria; so that if only the discolored portion the discoloration not being produced immediately upon the appearance of a few bacteria, so that if only the discolored portion were cut off numbers of bacteria would still be left in the stump, and these would continue to multiply, and the disease would soon be evident again.

Cutting off affected parts may be done at any time in the winter and spring, but it is not advisable to cut in the growing season, as fresh cases may be constantly occurring, and these, owing to lack of sufficient development, would not be seen.

The best time for cutting out affected branches is towards the fall, or when the trees have stopped forming new wood, when most of the blight has developed, and when the contrast between the discolored leaves and branches and healthy tissues is easily seen.

Trees should be carefully inspected for blight during the winter, and in spring before the blossoms come out, in order to destroy any affected parts that may have been missed at previous inspection.

All wild trees of the pome family in the vicinity should be examined as well, as these, if blighted, may serve to reinfect an orchard which has been carefully treated.

In cases where the bark of the trunk is affected it can be cut out and the wound covered with a lead and oil paint. The cut surface of branches over one-half inch in diameter should be painted.

TEN TO ONE IN FAVOR OF SPRAYING

MY attention was called in your December number to an article, Does it Pay to Spray?

I used an apple orchard of 300 trees owned by my father and myself as a comparison, and to the interest to the fruit growers I feel it my duty to make a reply before next spraying season, giving cost, etc.

Cost of Spraying and Quantities Used.

5,000 gallons water.	
1,750 lbs. lime, 25c. per bush..	$ 6 25
400 lbs. vitriol, 6¼c. per lb.	25 00
20 lbs. white arsenic, 10c. per lb.	2 00
20 lbs. Paris green, 16c. per lb..	3 20
40 lbs. sal soda, 2½c. per lb..	1 00
8 days team and man, $2.50 per day	20 00
16 days work, $1.25 per day..	20 00
	$77 15

Cost Harvesting.

Picking and packing..	$ 65 25	
500 empty bbls., contracted in Aug.	160 00	
106 empty bbls.	42 40	
		267 65
Total expense.		$345 10

Sold.

606 bbls. apples, at $2.50 per bbl.	$1,515 00
114 bush. evaporating apples, at 20c. per bush..	22 80
Total receipts..	$1,537 80

Canning factory prices, figuring 3 bushels in each barrel, with 114 bushels windfalls and culls, would be 1,932 bushels at 25c. per bushel, $483.00, less 2 cents per bushel for picking up expense, would leave $444.36 net from the canning factory, while the net on the barreled apples, after deducting all expenses, would be $1.192.70. An investment of $77.45 for six months gives us a profit of $748.34 more than we would have got if it had been taken to the canning factory; nearly ten dollars for every dollar invested for spraying. Owing to my being in the apple business we probably got 50 cents per barrel more than most other growers would have got; even at 50c. less this would leave $445.34 profit in favor of spraying to the grower. The expense we were to in pruning, fertilizing and cultivating only went last season in this section towards producing the fungus canning factory apples, and I consider the $748.34 was realized from spraying, as I see unsprayed orchards in this locality that had in previous years better care in pruning, fertilizing and cultivating than our orchard that would not pack (according to Fruit Marks Act) one barrel of No. 1 apples out of fifty barrels of fruit as picked from the trees. Such fruit would be too expensive work to sort, consequently they should go to the canning factory, as experience has taught the apple buyers that no matter how cheap they buy the fungus apples it will, before the end of the season, show up a loss. My opinion is, had the

canning factory here at Simcoe realized the apple situation in September as they did in December, canning factory apples would have been cheaper. There were large quantities of apples never gathered, as they had all or more contracted for than they could take care of to advantage, and the apple buyers could not buy for shipping as they were of such poor quality.

My observation of spraying in Ontario is that whether the grower owns a spraying pump or does not, he is apt to be busy at some other work when he should be spraying, and when he ought to spray he does not, and when he does spray it is in such a half-hearted way that his spraying does very little good, and unless you can spray at the right time and not be afraid of expense I consider you are losing your time and material. One grower in New York State last year estimated that he lost $1,000 on his 20-acre apple orchard by not spraying three days earlier.

Climatic conditions may be such that we may not have any fungus disease next year. Wet weather favorable to fungus and dry weather favorable to insects, so I shall continue to spray to hit both and insure one crop.

Care must be exercised in preparing the mixtures, as I have seen whole orchards of fruit ruined by not preparing the spraying solution properly. You must not guess, but measure and weigh, and keep well agitated every tank or barrel of the spraying mixtures so as to have all go out of the tank of equal strength, and soak the trees well from the ground to its highest branches with the finest spray possible, using Vermorel nozzles. I usually put 200 gallons in my tank each time and run two lines of hose, four nozzles each, and can put on our orchard 800 gallons each day with four men. I have one man take a 20-foot line of hose and walk under the trees and spray the trunk and all the under branches of the tree, while the other line of hose is used from on top of the tank.

My spraying solution for apples: 200 gallons water, 70 lbs. lime, 16 lbs. blue vitrol, 4-5 lb. Paris green, 4-5 lb. white arsenic, 1 3-5 lb. sal soda.

The arsenic must be prepared by boiling one pound arsenic with two pounds of sal soda for 45 minutes.

Time of spraying: 1st, as soon as the buds begin to swell; 2nd, just before the buds break open; 3rd, just as soon as the blossoms fall.

If you have a small orchard of 50 trees a barrel pump will do, but for an orchard of 50 to 300 trees a tank, an outfit like we have, is the best value, which cost about $50.00 complete, and for larger orchards a power sprayer is the best.

Thanking you for this valuable space to benefit the fruit growers. I am, your wholehearted believer in spraying.

JAMES E. JOHNSON,
Simcoe, Ont.

BIRD CHERRY PICKERS

I SEE that one of your correspondents in asking advice about a succession of sour cherries, says: "When my Early Richmond cherries begin to bear I shall be compelled to engage a great deal of help." What for? Not to pick the cherries. If it is there as it is here the robins, jays and catbirds will take everyone before they are ripe. I have a dozen trees and can't get enough to make a pie unless I take them half ripe or be content to pick off the ground what the birds let fall. The robins bring their young, sit them on nearby limbs and drop cherries into their wide open mouths

from sun up till sun down, and they appear to send out runners to all the regions round inviting all birds with their families to come and have a good time.

When the Montmorency cherries come in ten days later the red currants and early raspberries are also ripening, so the birds distribute themselves according to their tastes, so I get about half that grow on fifty trees. These birds ate for me last year at least $75 worth of cherries, saying nothing of strawberries, currants, raspberries and grapes. What benefit are they to the fruit grower and gardener that the government should protect them? In my opinion, none whatever. Who ever knew of a robin eating a potato bug, a cabbage worm, or an aphis? They live on earth worms till strawberries ripen, then choice fruit until they leave for the sunny south. I am in hearty accord with the fruit growers of some of the eastern States, "remove all protection, and if you can't shoo them shoot them."

A. W. GRAHAM,
St. Thomas, Ont.

THE HOTBED IN VEGETABLE GARDENING

FIRST consider the location. A gentle slope to the south is preferable. A windbreak, either natural or artificial, on the north, east and west, but not near enough on the east and west to shade the bed at any time of the day, is desirable. Very good results can be obtained from a hotbed built on level ground until the wet weather comes; then, as there is no chance for the surplus water to get away, the bed gets sour, and the stuff turns yellow and refuses to grow. Have the ground on which the bed is to be built free from ice or snow. If the ground is frozen, cover it with two or three inches of dry, cold horse manure. Cover this with at least a foot of warm horse manure, tread well and cover with another foot of cold horse manure. This for a bed built in the first part of February; if later in the season, smaller amounts can be used, or if the bed is being built on unfrozen ground, less will do. Tread the whole well, so that it is quite level with no soft places. On this foundation place the frame.

HOW TO MAKE THE FRAME.

The frame in most general use in our part of the country is 5 feet and 2 inches wide by 16 feet long, outside measurement; 12 inches deep, with three pieces of 2x4; 5 feet 2 inches long and 4 feet apart, cut into the sides until level with the top of the frame. Before fastening in these crosspieces it is well to square the frame, or the sash will not fit well. They will look like saw teeth, and there is no danger of leaving holes. Under the middle 2 x 4 put a piece of board 5 feet long, 4 to 6 inches wide edgewise, the bottom to be level with the bottom of the frame. This will greatly stiffen the frame and hold it in shape. We make the ends of this frame of 2-inch stuff and the sides of inch stuff.

Cover this frame with four sash 4 feet wide by 5 feet 2 inches long. Do not use glass larger than 8 x 10 inches; in large glass the breakage is much greater. Have glass bedded in putty and lapped about one-quarter of an inch. I have used sash with the glass butted. The breakage in those was much larger. The lap seems to give the glass double strength. The wooden part of the sash should be of 2-inch stuff. I have seen 1⅜-inch used, but they are too light and will not stand nearly so much wind when open.

FILLING THE HOTBED.

In the hotbed yards these frames may be placed in rows; about three frames, or 12 sash, in as many as can be handled conven-

iently in one row. Supposing this first row to be on the north side of the yard (which is the usual way), put the second 14 or 16 inches south and parallel with the first. Fill this walk or space between the rows with manure, dry, or frozen of you have it; anyway have the top 4 inches of this dry stuff. The wet manure will freeze in a foot, when if covered with dry 4 inches it will not freeze at all. I once tried to save labor by filling the frame with manure when I built the beds, and then take out enough to bank the walks with of the wet, hot manure. It froze to the bottom of the frame, and I had to remove it. Bank the ends of these rows well 2 feet or more.

In from five to seven days these beds should be hot and ready for earth. Then remove the sash and tread the manure until it is quite solid and fill the soft places. If this is well done the earth will come off much nicer in the fall, and if the manure is level and the top of the earth level you will have it the same depth all over. Spank the loose straws down so that they will not stick up into the earth and be caught by the rake. Put in 6 inches of earth, and when it is nicely warmed through, probably in one or two days, your bed is ready for plants or seeds. If it is about the first of March, and you have good plants raised in the greenhouse or earlier beds, you can have fine lettuce for market or the table in 25 or 30 days.

The sash should be covered with shutters on cold nights. They should be opened a little in the morning when the thermometer shows 70 to 75 degrees, when it will probably drop back to 60 or 65 degrees. If in the middle of the day it should go to 80 to 85 degrees, open a little more; by 4 o'clock if it is not above 80 degrees it will be safe to close the sash. If the wind is freezing, open the sash on the side or end away from the wind.

CROPS FOR THE HOTBED.

A crop of radishes can be raised in bed of this kind in 30 days. Sow the seed in drills ½ of an inch deep, the drills about 4 inches apart. It would be well to test radish seed. If it all grows, a seed every ½ inch is plenty; if only 50 per cent. is good, sow it twice as thick. I believe that all seeds used by gardeners for forcing purposes should be tested the year before, so that you may know that they will grow and also that they are true to name. This is especially true as to lettuce and cucumbers, for 15 cents' worth of these seeds will produce $500 worth of vegetables, while if your seeds were not true to name you might expend the same amount of labor, the use of your sash, and grow a poor crop, which would bring half price or less, and always hard to sell. April 1 is about as late as radish seed can be sown in hotbeds and get the crop to market before the outside crop gets in. But if you have good plants you can keep putting in lettuce up to May 1 with a good chance of marketing it in advance of outside lettuce.

About March 15 sow cucumber seed for hotbed crop. Sow the seed either broadcast or in drills, in greenhouse or hotbed; cover with sand. They will come up quicker covered with glass pressed down on the sand; remove this glass when the plants are plainly seen under it. Transplant into 4-inch earthen pots or berry boxes when plants are just starting the third leaf. This will be about April 1 to 5. May 1 you will have nice plants. Remove the plants and dirt from the pots or boxes and plant them in center of sash, place having been made for them by leaving out four or six lettuce plants. I have always had the best success with both lettuce and cucumber plants when they have been kept growing right from the start. Lettuce plants I would keep at 40 degrees if possible at night and on cloudy days, and 70 to 90 degrees when the sun is shining. Cucumbers I like at 80 degrees at night and 100 degrees in the sun.—*American Agriculturist.*

Flower Garden and Lawn

SPRING NOTES FOR FLOWER BED AND BORDER

BY WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

PLANT life out of doors has been well protected during the exceptionally severe winter we have experienced by the early and continuous falls of snow which have been so general—and in many places too copious—all over the province. In spite of the mercury indicating zero for days together, and sometimes dancing away twenty or thirty degrees below that point, there is very little frost in the ground at this date (February 13th). In many places there is only a few inches of frozen soil, whilst a few specially well protected spots have been found with only a slight crust of frozen earth.

The trying time for plant life this season, however, has yet to come. Owing to the very early snow falls very little artificial protection could be given to plants in early winter.

It will be well, therefore, for those who have plants or bulbs of a tender nature in the garden to prepare to give them some protection during the period of broken weather usually experienced when spring approaches. Tender roses, tender shrubs, as well as plants of a tender nature in the border, will be very much benefited by some slight protection during periods of alternate freezing and thawing, as well as sunshine, the last mentioned being as hurtful to plant life in many cases as severe frost at this season of the year. A few fine boughs or tree trimmings, with a sprinkle of straw or long strawy manure amongst them will make an ideal spring protection for plants. Heavy, close covering is not necessary. The covering should be placed over the plants almost before the snow has thawed away from them. It can be left on day and night if the nights are frosty and bright sunshine prevails in the day time. A few days partial seclusion from sun and light will not hurt plants at this season when severe night frosts prevail.

PRUNING.—Flowering shrubs need very little if any pruning at any time. Thin out here and there the most prominent branches, if the plant is overgrown or unshapely, but do not clip or shorten back all of the young growth, as this mistaken method of pruning deprives the shrub of the growth necessary to produce the coming season's wealth of blossom. In most cases the thinning out process before mentioned can be profitably done later, when the shrubs are in flower, as the prunings can then be used for decorative purposes indoors. If not of too severe a nature this late pruning in summer will not injure the plants.

One exception to this method of thinning flowering shrubs should be mentioned, viz., that of the hardy hydrangea (hydrangea paniculata grandiflora). This plant should be severely pruned back early in the spring before the buds start, or it can be done in late autumn time or early winter. If not already done, the young shoots of this popular shrub should be cut back to within three or four inches of the old growth. This method of pruning produces much better and larger panicles of bloom than if the plants are not so severely pruned. Cedar and spruce hedges may be clipped at any time during April or early in May, not later. By clipping them at this time, just before growth commences, they can be clipped rather severely if necessary. Later clipping than the time mentioned is not advisable, unless left until autumn. Late summer clipping

of evergreen hedges or trees, as sometimes advised, means the disfigurement and loss of most of the delicate green tassel like growth that gives them such a beautiful appearance in the early summer months, more especially that of Norway spruce.

Pruning Roses.—All hardy out door rose bushes should be pruned about the end of March or early in April, just as the buds show the first signs of breaking into growth. Bush roses require severe pruning, especially if the plants are extra strong and robust. Cut out all the dead branches just as well as the weak thin shoots. Prune the growth that remains back to within four or five inches of the old growth. The stronger the shoots the more severe should be the pruning. Strong young canes or shoots growing up from the base of the stem should be pruned back to about eighteen inches in length. Care must be taken, however, to ascertain if these last named canes or shoots are the real growth of the rose, or only suckers from the stock. These suckers occur only on roses budded on the briar or manetti stock and may be discerned from the true rose growth generally by their being of a much lighter shade of green in color, as well oftentimes by the almost entire absence of prickles that the growth of most roses produce. These suckers should be removed from as close down to the root of the tree as possible, or they will eventually kill out entirely the true rose growth.

Climbing roses should have the dead shoots removed and the weak growth thinned out so that the branches are not left too crowded. The strong vigorous canes or shoots should be pruned back so as to leave them from three to five feet in length.

Removing Winter Protection.—In removing winter covering from bulbs, plants or shrubs, do not expose them at once to full light and sunshine or the changeable spring weather. Remove the protection by degrees as the state of the weather permits. Weather conditions and not the calendar must be the guide in this respect.

Seeds.—In making out the seed list avoid putting down too many novelties. Use these as extras; it will often save disappointment.

Planting.—When plants or trees are received from the nursery, either heel them in or plant them in their permanent positions at once. Exposing the roots of any plant or tree to sun and air even for a short time only is injurious, and is often the cause of failure when transplanting. This is especially the case with evergreens, such as spruce and cedar.

In transplanting make sure that the soil is packed well around the roots. sufficient to make the soil firm. Air spaces around the roots of a newly planted tree or shrub often means rot or decay to the roots and perhaps death to the tree. The drier the soil when planting the more necessity there is to pack it firmly.

Plant when the ground is fairly moist if possible. Better to wait a day or two before planting if the ground is of a clayey nature and sodden with water.

Frozen Plants.—The best method of treating plants that have been frozen is to remove them at once—before the frost is out of them—and place them on the floor in a dark corner of the room, where a temperature of about 45 or 50 degrees prevails, not warmer, as a too rapid thawing out is not advisable. Cover the plants up carefully with a blanket or rug so as to exclude all light and as much air from them as possible. Do not touch the foliage with the hands or allow the covering to touch the plants. Keep them covered up close about twenty-four hours. The plants should not be brought into full light or sunshine for several days. I have found this method of treating frozen plants to be much better than the more speedy and radical method of deluging them with cold water as is often done.

THE CHRYSANTHEMUM

BY H. L. HUTT, B.S.A., ONTARIO AGRICULTURAL COLLEGE, GUELPH.

(CONCLUDED)

FIG 2755. ROHALLION.

Another popular way of growing chrysanthemums is what is known as "single blooms in five-inch pots." The beauty of these is the dwarf size of the plant and the large size of the bloom, although I think the beauty of the plant as a whole is improved by allowing three or four blooms to a plant. To obtain such plants it is necessary to start the cutting in May, pack the soil in which they are grown very firm, keep in small pots, and pinch back lateral buds as required.

CLASSIFICATION AND VARIETIES.—Any classification of chrysanthemums nowadays is a difficult matter and very unsatisfactory. The best classification, and the one usually adopted, is as follows: Pompons, Singles, Anemones, Chinese Incurved, Chinese Reflexed, Japanese Incurved, Japanese Reflexed and Hairy Japanese. But with all the crossing and re-crossing, which has produced so many intermediate varieties, is is often difficult to say to what class any particular variety belongs to. The list of varieties, too, has become so long that only a few of the best of each class need be mentioned.

The Pompons bear small button-like blossoms, an inch or an inch and a half in diameter, of a great variety of colors. The plants are of dwarf habit, hardy and very free flowering. Rose Travena is the most desirable variety of this class I have tried.

The Single Chrysanthemum is built on the same plan as the Ox-eye Daisy. An endless variety of these may be obtained by

FIG. 2756. INFANT DES DEUX MONDES.

FIG. 2757. MRS. H. CANNELL.
PHILADELPHIA. JUDGE HOITT.
GLADYS SPAULDING. MRS. GEO. GLENNY.
JORA. ENFANT DES DEUX MONDES.
JOEY HILL. LOUIS BOEHMER.

sowing seed, but, as a rule, they are hardly worth while cultivating.

The Anemones have only one or two rows of ray flowers, which may be wide spreading or drooping. The centre florets are usually the same color as the rays, but are quilled and very much shorter. Judge Hoitt is a typical variety of this class.

The Chinese Chrysanthemums are characterized in the typical forms by the regular globular form of the flower, and the evenly imbricated petals of medium width. In the incurved section the petals arch gracefully inwards towards the centre, while in the reflexed section the petals are curved backwards. A few of the best I have tried of this class are: Ivory, an early, pure white, of dwarf habit; Mrs. L. C. Maderia, a symmetrical, compact globe, of bright orange color, and Mrs. George Glenny, a profuse bloomer, bearing medium sized flowers of a pale sulphur yellow color, a beauty when loaded with bloom.

The Japanese Chrysanthemums, and the numerous hybrid forms which have emanated from them, make up the majority of our large flowered varieties. Some have flat petals, in others they are fluted, quilled or twisted. Some are broad and short, others are long and slender, almost thread-like. In some the petals are incurved over the centre, in others they are reflexed.

The petals of the hairy varieties are covered with hair-like granular growths. This type is one of the most recent introductions, and already includes many choice varieties. An extensive list of grand Japanese varieties might be given. In our collection at the

FIG. 2758. HELEN BLOODGOOD.
PITCHER AND MANDA. HARRY BALSEY. GOOD GRACIOUS.
MRS. G. A. MAGEE. C. H. MCCORMICK. F. L. AMES.
L. B. BIRD.

FIG. 2759. BRIDE OF ROSES.

college we have about 130 varieties, but I shall mention only a few of the most desirable ones, including the various shades of the different types.

Maud Dean. This is a variety which can hardly be commended too highly. The flowers are large, a beautiful shade of lilac pink, and of great substance. The plant has stiff, long stems, is short jointed and of healthy compact habit.

W. H. Lincoln. The habit of this variety, like the one just mentioned, is nearly all that could be desired. The flower is large, and probably one of the best of the bright golden yellows.

Joey Hill. Flowers very large, florets broad and reflexed, cardinal red above and old gold beneath. The plant is healthy and free flowering, but rather tall.

Rohallion. An excellent pale yellow. The flowers are medium size, the florets semi-quilled and curled. Plant healthy, vigorous and a profuse bloomer.

President W. R. Smith. A rather tall growing variety for window culture, but one of the best to grow as a standard. Flowers large, late, incurved, and of a very pleasing shade of light pink.

Lilian B. Bird. This is also a rather tall grower, but the bloom is very striking, being made up of long straight quilled florets, of a soft shade of light pink. One of the latest to bloom.

Iora. An exceedingly artistic flower of light pink color. It is also a quilled variety, but unlike the one last named, the florets are curled and twisted. The plant is moderately short jointed, vigorous and very free flowering.

FIG. 2760. VIVIAND-MOREL.

L'Enfant des deux Mondes, or The Child of Two Worlds, is one of the finest of the hairy varieties. Flowers large, pure creamy white and densely covered with granular hairs. Plant of good compact habit and a profuse bloomer.

Louise Boehmer is a beautiful magenta pink, of the hairy class, and similar to the last mentioned variety in almost everything but color.

To those who would like to get more information on the subject than could be given in a short paper, I would like to recommend some literature which would, no doubt, be of interest to them. One of the best books on the chrysanthemum is "Chrysanthemum Culture for America," by James Morton. As an excellent work on floriculture generally for the amateur, I could not recommend anything better than "Vick's Home Floriculture," by E. E. Rexford, the popular writer on that subject in the Ladies' Home Journal.

FIG. 2761. LOUIS BOEHMER.

FIG. 2762. PORCH COVERED WITH VIRGIN'S BOWER.

FIG. 2763. CLEMATIS VIRGINIANA (VIRGIN'S BOWER).

SOME GOOD CLIMBERS FOR THE PORCH—I.

FEW of our readers, even among those who belong to our affiliated horticultural societies, are aware that we have in Ontario a native variety of Clematis which is sufficiently hardy to be grown even in our northern sections. Some years ago we received some plants of it from Mr. J. P. Cockburn, of Gravenhurst, and these have thrived wonderfully well, covering a portion of the front porch as seen in our engraving.

The flowers are white and small, compared with many foreign varieties, but are so numerous as almost to cover the vine, and grows in panicles as shown in Fig. 2763. These come on the new wood in June and July, and in August the flowers are succeeded by numerous carpels, with long tails, as shown in Fig. 2764 and which are also ornamental. The leaves of the Virgin's Bower are alternate, and each leaflet is acute heart-shaped, and coarsely toothed, and often cut in deep lobes. The vine grows stronger each year, and will reach up fifteen or twenty feet.

FIG. 2764. BUNCH OF CARPELS.

WINTER WINDOW GARDENING

AN ADDRESS BY WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

(CONCLUDED)

FIG. 2765. ANTHERICUM PICTURATUM.

Dutch hyacinths and several varieties of Narcissi, such as Von Scion, Poeticus, and the Trumpet, are among the best and easiest varieties of bulbs to grow in a window, although the Jonquils and other types of Narcissi than those mentioned succeed splendidly as window plants. These last mentioned species of bulbs are later flowering than the Roman hyacinths, and do not usually come into flower until February or later. When potting these later flowering bulbs it would be advisable to bury the pots in the cellar, or plunge them in some position where they can be protected from very severe frosts. A certain amount of freezing will not hurt them, but it is difficult to remove the pots without injury when they are frozen too hard. All potted bulbs require plenty of water after they are brought out to the light, that is, the soil should never become really dry at any time.

In potting bulbs, the top or apex of bulb should be barely showing above the surface of the soil. Three Roman hyacinths or three or four bulbs of narcissi can usually be planted in four or five inch pots. In the case of Dutch hyacinths one bulb to a four inch pot is usually sufficient.

The Freesia is another useful and easily grown winter flowering bulb. Plant five or six bulbs in a four or five inch pot in the manner described for hyacinths, etc., but do not bury the pots under ashes or soil. Stand the pots in a fairly sunny position in a temperature of about 50 or 60 degrees, and water sparingly after the first watering until growth has well commenced. The first Freesia bulbs can be potted in August, and as often as required afterwards until November. The delicious odor from only a single spray of these flowers will perfume a large house. Late planted Freesias should be started in the window. The Arum or Calla Lily should be kept nearly or quite dry during the summer months. The best place for these lilies during the summer is to lay the pots on their sides about the first of June or as soon as the plants are out of flower. A shaded position under trees or in the shade of a building or fence is a good place for them while dormant. Re-pot them in August if necessary, but do not overpot them, as too large a pot often means a lot of leaves and no lilies. Give the plants lots

of water whilst they are in a growing condition, never allow the soil to become quite dry. Some drainage placed at the bottom of the pot when repotting is advisable. Use light rich soil for callas.

Many varieties of begonia make splendid window plants for winter. Among the most satisfactory is the beautiful golden blotched leaf variety, Begonia manicata aurea. This is, in my opinion, the best window begonia we have for winter use. Begonia argentea guttata is also another useful variety, also the Paul Bruant variety. The Begonia incarnata rosea, with its pretty pale pink blossome, that it produces so freely at Christmas

FIG. 2766. HYBRID REX BEGONIA, BERTHA MCGREGOR.

time, is another that should not be overlooked, but it is rather more delicate than those first mentioned.

The Rex, or ornamental leaved Begonia, make pretty window plants. Many people fail with these begonias from placing them in a sunny position in the window and by over-potting them. All Begonias like a light soil to grow in, one third of fine sharp sand and two thirds of fairly rich loamy potting soil makes a good admixture of soil for Begonias. A little well rotted leaf soil mixed in will be beneficial. Use nearly an inch of drainage in the pots when potting Begonias. Begonias like a temperature of 65 to 70 degrees, but do not like much real hot sun, preferring partial shade, at noon especially.

Many more varieties of Begonias could be mentioned, but those I have named are among the best for windows in winter.

A very easily grown and effective window plant is the Anthericum picturatum. Its pretty striped foliage makes it a bright, conspicuous feature at any season of the year, more particularly in winter, its silvery, ribbon-like leaves contrasting very prettily with the almost universal green of the foliage of winter window plants. These plants like a temperature of about 65 degrees, and require a rather shaded position in the window. Plenty of water should be given them, as a very dry condition of the soil often results in serious injury, and perhaps the total loss of the plant, if the drought is of long duration.

There are many other species of plants suitable and comparatively easy of culture, but time will only allow of a few being mentioned. Among them is the Cyperus alternifolia or Umbrella plant, that delights in a warm, partially shaded window, where the sun does not strike at noonday. Given this position, with plenty of water at the roots, and its foliage also given a dip once or twice a week in water, its whorls of delicate green leaves will retain their freshness much longer than if they are kept in a dry, overheated atmosphere.

Many of the varieties of Cactus help to relieve the sameness that a collection of window plants often present in winter. Cactus like plenty of drainage in the pot, plenty of sand (nearly half) in the potting soil, and not too frequent watering. The Lobster Cactus (Epiphyllum truncatum) as well as a few of the quicker growing Cactus of the Phyllocactus type, may like a little richer and heavier soil, but there is danger even to

these, unless plenty of drainage is given, as well as care in watering, as they are very liable to rot at the base of the growth, especially if over-potted.

The Farfugium grande (Leopard plant) is also a good window plant, its thick leathery gold spotted leaves being particularly noticeable in a window. It delights in a rather cool shaded window, requiring plenty of moisture at the roots. This is one among the few plants that succeed better in a window than in most greenhouses. It is seldom a good specimen is seen in a greenhouse, whilst handsome specimens, a foot or two in diameter, are often seen in dwelling house windows, as well as on verandahs in summer.

The Ficus elastica (rubber plant) is also a good enduring window plant. Its leaves require sponging frequently to increase and preserve the glossy green of its foliage; the latter, together with its power of resisting gas and the bad effect of a dry temperature, being its chief points of recommendation as a window plant, as it is not of a very graceful appearance, even under the very best conditions.

Amongst climbing or trailing plants the several varieties of Tradescantia or Wandering Jew, as well as the variegated Japanese Vincas or Periwinkles cannot be omitted. The Saxifraga sarmentosa (Spider wort or Mother of Thousands) is also a splendid plant for a hanging pot or basket in a window.

The rampant climbing plant known as the German or Cape Ivy is a grand climber for the window, a single plant often covering the entire window.

During the address practical illustrations were given by the lecturer of the methods of propagating most of the plants mentioned. The method of propagating the Ficus or Rubber plant by mossing partially severed cuttings, whilst the branch or cutting is still left on the plant, was most interesting. Cutting up the leaves of the Rex Begonia into discs and sectional cuttings from the leaves of these plants was also fully illustrated and described, as well as the best methods and seasons of the year for propagating them. Propagation from terminal cuttings from plants, such as the fuchsias, geraniums, begonias, etc., was fully illustrated and explained, as well as sectional stem cuttings, and raising plants from root cuttings, natural specimens being used in the different demonstrations made during the progress of the address.

It was also explained that clean, sharp, fine sand placed in well drained pots or shallow boxes was the best material for rooting cuttings of most window plants, the summer time being the season when success was most likely to crown the efforts of the amateur in increasing his stock of window plants from cuttings of any kind.

The best kind of soil to furnish the basis of a good potting compost for window plants is obtained by cutting sod from a pasture field where the soil is of a loamy nature, and the grass kept fed down. Cut the sod about four inches thick and the size over of a spade. Make a pile of sufficient size of this sod by first laying two thicknesses of sod with the grass side downward, then put about the depth of one sod, three or four inches, of cow manure. Continue this succession of sod and manure until the pile is large enough. Make the pile outside in a corner of the garden away from chickens and animals. In six months it will be ready for use. This compost can be tempered with sand or leaf soil as required for plants that require a very light soil, such as begonias, fuchsias, ferns, etc.; but for geraniums, roses, bulbs, and the majority of window plants, the sod compost will suit splendidly, especially if the sod is taken from a sandy loam soil.

The Canadian Horticulturist

COPY for Journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 per month. Copy received up to 20th.

LOCAL NEWS—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS—The Editor will thanktully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees. etc.; bur he cannot be responsible for loss or injury.

NEWSPAPERS—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES—Remember that the publisher must be notified by letter or post card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers' Association Department of Agriculture, Toronto, to whom all **POST OFFICE ORDERS,** cheques, postal notes, etc., should be made payable.

THE CANADIAN ASSOCIATION OF FALL FAIRS.

H. B. Cowan, the New Superintendent.

The two days' convention of the Canadian Association of Fall Fairs and Exhibitions. held in Toronto, was one of the most successful, systematic and beneficial sessions in the history of the organization. The attendance was large, and great interest was manifested throughout in the proceedings.

The association's officers for the coming year are: President, W. B. Sanders, Stayner; 1st vice-president, J. W. Shepperd, Cayuga; 2nd vice-president, James Mitchell, Goderich; recording secretary, Alex. McFarlane, Otterville; corresponding secretary, H. B. Cowan, Toronto; directors, J. T. Murphy, Simcoe; Ed. Jeff, Bond Head; Rev. C. B. Clark, Russell; Chas. Walker, Erin; W. E. Smallfield, Renfrew; R. R. Hall, Parry Sound; Allan Gray, Uxbridge.

The first paper of the day was that of Prof. C. A. Zavitz, of the O. A. C., Guelph, who spoke on "Experimental Plots in Fair Grounds." Mr. Zavitz spoke of the striking increase in value of Ontario's crops, which he attributed largely to the seed plots at the Guelph College. The Whitby Fair had first introduced plots, and since then five other Ontario fairs had done so, while applications for seed had come from Quebec and the Maritime Provinces. Mr. Zavitz predicted that in the ensuing five years the fall fairs would exert a greater influence in improving crops than they had done in half a century.

Mr. C. C. James, Deputy Minister of Agriculture, stated his opinion that the fall fair should be purely educative. He believed the farmer should have amusement, but he should have it all the year round, and not expect to get it only for two days at his fall fair. He urged that the rate of advance the past five years be maintained.

Enterprising Poultry.

The last item on the morning's program was a talk on "Poultry Culture" by W. R. Graham, of the Ontario Agricultural College. He made the surprising statement that the hens at the college had been laying all through the cold weather, even one day when it was 13 degrees below zero in the coop. This he laughingly cited as a result of educating the hens. The hens were not kept warm, but were given exercise and fresh air.

At the afternoon session W. A. MacKinnon, chief of the fruit division at Ottawa, gave a

valuable address on "Fruit at Fall Fairs." He advised that exhibitions of fruit be separated into two classes—commercial and amateur. The commercial class should again be classified as export or domestic. The former should be shown packed in barrels ready for shipment, and in boxes, wrapped and unwrapped. Those intended for domestic sale should be shown packed in baskets, barrels and boxes. He said that the Dominion Department of Agriculture was willing to give all possible assistance and to supply expert judges for fruit exhibitions.

This Year's Outlook.

Mr. Creelman, in an address on "The Outlook for Fall Fairs in 1904," suggested that smaller associations be formed, embracing districts whose products were in common. In a central association, covering so much territory, it was possible to deal with subjects only in a general way.

Mr. H. B. Cowan, who succeeds Mr. Creelman as superintendent of agricultural societies, outlined his proposed work for 1904. He advocated liberal advertising of fairs, a convention of secretaries for mutual benefit, careful attention to the interests of the farmer, the main support of the fall fairs, and unity of effort by groups of adjacent fairs, including the hiring of a manager to devote his whole time to a group of fairs. Mr. Cowan also proposed a method of insuring fairs against financial loss by reason of rain on exhibition dates.

The usual votes of thanks to the city authorities, the speakers and press were passed, and the convention was closed.—The Mail-Empire.

THE EXPORT APPLE TRADE.

Late advices from Liverpool report a good market for all arrivals of sound stock which have sold at steadily advancing prices. Account sales have just been received from Liverpool of a lot of 150 barrels of Golden Russets netting the shipper $3.40 in the west, a lot of 100 barrels Baldwins netting $3.10 in the west, and 100 barrels of Greenings netting $3.00. A choice lot of Golden Russets netted the shipper a fraction over $4.00 per barrel. The same western shipper, however, admits that by the same mail he received returns of two lots that only netted him 75c and $1.10 per barrel respectively, on account of a portion of the fruit being frosted. But on the whole he is well satisfied with the result of his shipments this season up to the present; but what he is afraid of is that as the market on the other side has held up so well, that shippers will be induced to send forward second qualities, a considerable quantity of which it is said is still held in the west, and which it is difficult to dispose of to the local trade. Up to the present it is generally admitted that Canadian shippers have realized good average profits this season, and a Montreal firm is reported to have made splendid gains on its Nova Scotian shipments to London market. The total exports of apples from Canada and the United States for the present season up to week ending February 13, 1904, were 2,922,906 barrels as compared with 2,097,581 barrels for the corresponding period last year, showing an increase of 825,325 barrels.—Fruit Trade Journal.

FRUIT GROWERS' ASSOCIATION SHOULD LEAD IN THIS.

At the Ontario Fruit Growers' convention Principal Mills, of the Ontario Agricultural College, made a suggestion that has elicited considerable discussion, and may lead to a most important change in the railway freight charges. The suggestion was that the Dominion Government should be asked to establish an express branch in connection with the postal service. The railway freight rates are much too high, but the charges in a service carrying small parcels in connection with the postoffices is already in existence and works in a most satisfactory manner. With our express business nationalized it would be possible to take a package of butter, eggs or fruit to any postoffice on rail line and have the same delivered to the customer more promptly and at very much less cost than now. It would be a great gain to the farmers and to the consuming portion of the community. In Canada a large proportion of the cost of railway construction has been borne by the taxpayers, and it is now proposed by the Laurier Government to increase the grants out of the people's treasury to the Grand Trunk by many millions of dollars. It is then quite time that the people should study their own interests more, and the suggestion of Principal Mills regarding nationalizing the express service is a case which every intelligent citizen should adopt and press to a conclusion favorable to the people. The Fruit Growers' Association might very properly lead the way in the agitation, and it is to be hoped the association will do so.—Bobcaygeon Independent.

FRUIT FOR ST. LOUIS.

Mr. T. H. Race, editor of the Mitchell Recorder, has been appointed as the Dominion Fruit Commissioner at the St. Louis Exposition, and expects to spend the greater portion of the summer at the place. He will have entire charge of the fruit exhibit of the Dominion.

"I think Canada will make a splendid showing in the line of fruit," he said in a recent interview. "All arrangements have been completed, and the growers are responding well. The exhibit should be a good advertisement for this country, especially as it is to be housed in a very fine building which Canada is erecting. There will be a fine showing of all agricultural products, save live stock, and I can scarcely say that I blame the stockmen for the stand they have taken in the matter, as the conditions were certainly most vexatious."

Mr. Race has been addressing institute meetings, which on account of the weather have not been as well attended as in former years. This does not mean any diminution of interest in the

work, but the terrible state of the roads is entirely the cause. Farmers are quite unable to get out to attend the meetings, and with the best desire in the world to hear what the speakers have to say, they are impotent to help themselves. Last year was about the best in the institute work.

SPREAD THE FRUIT AROUND.

How Canadian Shippers May Obtain Good Prices.

Mr. Peter Ball, Canadian Commercial Agent at Birmingham, advises Canadian apple shippers not to pour the whole of their fruit crop into London, Liverpool, Manchester and Glasgow, within a few weeks, for sale in auction rooms, but to spread them over the different towns, placing them in the hands of firms who could take regular supplies. The latter course would pay better.

"I could place," he states, "among different towns in this district up to 10,000 barrels a week, divided among respectable men, if any of our apple shippers would care to get into communication for regular supplies." It was most unfortunate that Canadians shipped so many apples just before Christmas. At the present time it is almost impossible to purchase Canadian apples in the market. Spys, Russets and Baldwins, which went for 12s 6d and 14s a barrel, now command from 21s to 25s.

CANNED AND EVAPORATED GOODS TRADE.

Mr. A. W. Grindley, agent of the Department of Agriculture in Great Britain, gives the following information in regard to the trade in canned and evaporated goods during 1903, in addition to the extracts from his annual report, published last week.

Fruit Pulps.

There is a good demand for the following fruit pulps, which can be put up in Canada: Strawberry, raspberry, gooseberry, black currant, peaches, pears, apricots.

The above fruits are largely used in jam factories in Great Britain.

Canadian packers of fruit pulps should observe the following points:

1. Use a heavy grade of charcoal tin plates for making the cans.
2. Do not use resin for soldering the inside seams, as the least portion imparts a bad flavor to the contents.
3. One gallon tins are preferable to cans holding five gallons, chiefly because there is less loss in case of a puncture or other cause of damage.
4. For colored pulps an internally lacquered tin is very much preferred.
5. No coloring matter or preservatives of any kind should be added.
6. Have cases holding cans made strongly and with tight covers, not slats.

NATIONAL CONFERENCE OF FRUIT GROWERS.

At the annual meeting of the Nova Scotia Fruit Growers' Association at Bridgewater it was mentioned that the Dominion Minister of Agriculture had received a communication from leading fruit growers of Prince Edward Island, New Brunswick and Nova Scotia, asking him to call together at Ottawa a conference of representative fruit growers from all the provinces of Canada to discuss matters of national interest, such matters as might call for legislation by the federal parliament, or matters that might require unanimous action on the part of the fruit growers of this country. In this connection Mr. W. A. McKinnon, chief of the Fruit Division, Ottawa, referred to the advisability of concerted action regarding such subjects as transportation, legislation, uniformity of packages, etc., and said that the Hon. Sydney Fisher and Prof. Robertson would welcome a full discussion of the proposal and an expression of opinion from the Nova Scotia and other provincial fruit growers' associations. The matter will accordingly be taken up by a committee of the Nova Scotia Fruit Growers' Association, some members of which suggested the formation of a Canadian Pomological Society of national character and scope.

APPPLE BARREL STAVES.

A leading Guelph apple shipper writes the Fruit Division, Ottawa, that he can use from 12,000 to 15,000 barrels every year, and that it is his intention to buy the staves and make his own barrels hereafter. He says: "The trade will have to make great prepafations, because all staves in the country will now be very green wood, and I should specially warn your department to urge all stave dealers to get drying kilns working so that stock will be O. K. when needed."

FRAUDULENT APPLE PACKING.

Under the above heading the Winnipeg Commercial of February 6th has an editorial of more than ordinary interest to the fruit shippers of Ontario. The article says: "Another Ontario fruit man was fined at Winnipeg last week for attempting to sell apples in this market which had been falsely marked and packed. The offender had not even the excuse that he was ignorant of the law to offer, and his guilt was even increased by the fact that he had been warned for the same offence before. If we are to judge the Ontario fruit shippers by the proportion of them fined here for dishonesty of this kind the opinion would be formed that more than an ordinary percentage of them are worth watching in business; and if we are to judge Ontario business men generally by the standard which this would set up for the fruit men, there is danger that the good opinion of them heretofore held will have to be considerably modified. The number and extent of the frauds exposed

by the operations of the inspectors working under the Fruit Marks Act has been such that the public may well believe that before the act went into effect honest packing was the exception rather than the rule. It is to be hoped that the recent police court experiences of Ontario shippers to this market, of which the above mentioned case is a sample, will have the effect of stopping the dishonest practices which, if continued, can only have the one effect of driving Ontario out of this market altogether."

THE FRUIT PROSPECTS.

It is a little early to say much about the fruit crop of 1904, but it is a question of such importance to fruit growers that we welcome even the probabilities. The winter has been one of such universal severity that the peach and sweet cherry buds in even the most favored parts of the province have been very severely thinned, and in the less favored places almost entirely destroyed. In our own orchards we find from one-third to one-half the peach buds black at heart when cut open transversely; but, unless the injury is more extended than this would indicate, a sufficient number are still alive to secure a good peach crop. If the reports are true that New York and Michigan peach buds are destroyed, then we have a fair prospect for good prices in 1904.

Pears and plums are injured in sections farther north, and even apples will be most severely tested in their most northerly limits.

Mr. J. S. Mitchell, Clarksburg, near Collingwood, writes:

"Peach buds seem to be badly hurt. All other fruits are all right and prospects good. We have had no thaw this winter. Most ice in Georgian Bay in forty years, and deepest snow I ever saw. Great damage done by mice, especially in uncultivated or grass orchards."

Mr. Harold Jones, of Maitland, near Brockville, writes:

"It is too early in the season to state definitely the condition of the fruit trees in this section. The long continued cold weather and deeply frozen ground has caused some shrivelling of twigs and buds on the apple trees, but I cannot see any serious injury as yet.

"Pears and plums will likely suffer serious injury, as much of the wood is darkened, and cherries are in an uncertain condition.

"The thermometer in January registered as low as 38 and 40 degrees below zero, and we have had steady cold with very few days above zero since January last."

Mr. W. H. Bunting, of St. Catharines, writes:

"It is generally conceded that peach buds are pretty well destroyed, although not entirely so. A great many of the older trees are also badly frozen, and in some cases will not in all probobility recover. It is quite too early to discover whether root killing has obtained to any degree, but from the fact that we have had a great deal of severe weather, with little snow covering the ground during portions of the winter, this trouble may be in evidence later on. Under favorable circumstances we could hardly expect a repetition of last season's heavy crop of fruit this year. I would therefore not be surprised if the coming season should be marked by a very great decrease in the production of our tender fruits."

CANADIAN APPLES IN FRANCE.

That only the finest qualities of firm fruit will bring profitable returns when exported to Europe is again made manifest. Writing to Mr. W. A. MacKinnon, chief of the Fruit Division, Ottawa, M. W. Richeux, of the firm of Champagne Freres, Limited, Paris, says: "In August and September last we had occasion to write you and take advantage of your kindness to obtain information about the apple business in your country, and also about the line of steamers from Canada to France. As was foreseen, and for the first time, this year Canadian and American apples have come to France in important quantities, on account of the French crop being almost a complete failure, and we are glad to say that the best goods have obtained satisfactory prices, although the market is not so very good at present. We are, however, of opinion that it will soon recover, and that prices will rise again, but what we want in France are the best qualities and hard and strong apples that will arrive in good condition. Any arriving in somewhat doubtful condition will sell very much lower. We have started this business ourselves, and hope to receive some Canadian apples and obtain satisfactory results."

THE NORTH OF IRELAND MARKET.

Once again the attention of the Fruit Division, Ottawa, has been called to the excellent market that exists in the north of Ireland for first-class Canadian fruit and other food products. This time it is Mr. R. Andrews, 56 Clifton Park avenue, Belfast, who mentions the fact that this market is not properly cultivated by Canadian shippers, and who desires to be put in communication with some of these gentlemen. He is in a position to do general commission trade, and would undertake agency for Canadian manufacturers as well as produce in the north of Ireland, where he has good connections.

A similar request has also been received from Albert Cabaret, 77 Bd. Gouvion, St. Cyr, Paris, France. Mr. Cabaret is prepared to handle all lines of Canadian goods, including fruit, of which considerable quantities have been exported to France this season.

JOHN H. DUNLOP

Lansdowne Ave., Toronto, Ont.

Makes a specialty of . . .

ROSES, CARNATIONS AND VIOLETS

Growing these to the greatest perfection in immense quantities, and with specially built houses for the purpose, thus ensuring strong, clean, healthy stock.

Write him for anything you equire in young plants of roses or carnations.

Write for catalogue or call in person and visit the greenhouses.

The pussy-willow and the hazel know,
The bluebird and the robin, what rings true;
I trust to such, and let the whiners go.
Bravo! Bluff March; I swing my hat to you.
—*Country Life in America.*

A Golden Rule of Agriculture:

Be good to your land and your crop will be good. Plenty of

Potash

in the fertilizer spells quality and quantity in the harvest. Write us and we will send you, *free*, by next mail, our money winning books.

GERMAN KALI WORKS,
93 Nassau Street,
New York.

WE TRUST YOU

With 2 doz. large beautifully colored packages of **Sweet Pea Seeds** to sell for us at **10c.** each. For your trouble we will give you a beautiful little Watch with Gold hands on which a large rose with buds and leaves is elegantly enamelled in seven colors. Edna Robinson, Powassan, Ont., says: "My watch is a perfect beauty." Write us a **Post Card** to-day and we will send you the Seeds postpaid. A 50c. Certificate free with each package. Gracie Brown, Cheverie, N.S., said: "I sold all the Seeds in a few minutes." **THE DOMINION SEED CO., DEPT. 875, TORONTO, ONTARIO.**

Mention this Paper.

EVERGREENS

Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100. 50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.

D. Hill, Evergreen Specialist, **Dundee, Ill.**

Trees

True to Name

We sell only the best rooted, straight, clean, well branched trees, true to name, at attractive prices.

For Sale at Bargain Prices

New Niagara Peach Trees, 3 to 4 ft. high, at $6.75 per 100. Apple Trees, $6.00 per 100 and up. Standard Pears, $8.00 per 100 and up. Plums, $10.00 per 100 and Cherries, $15.00 per 100 and up. These trees are 4 to 5 feet high and desirable for orchard planting. Send for our new 112-page illustrated catalog, send us a list of your wants for special prices. We can save you money.

Green's Nursery Co., Rochester, N.Y.

Mention this paper and get copy of Fruit Magazine free.

FERRY'S SEEDS

Deserve your confidence. They have never failed—won't fail now. Sold by all dealers. **1904 Seed Annual** postpaid, free.

D. M. FERRY & CO. Windsor, Ont.

GREGORY'S SEEDS

Famous for nearly half a century for their freshness, purity and reliability—the safest, surest seeds to sow. Ask anyone who has ever planted them. Sold under three warrants.

Send to-day for free catalogue.

J. J. H. GREGORY & SON, Marblehead, Mass.

WOMEN

Send for our illustrated catalogue free.

Ladies' Toilette Supply Co.
313 Garfield Block, Clyde, Ill.

$1,000 REWARD

FREE FULL SIZE.

To anyone who will prove we do not do as we advertise.

We want to have our marvellous household remedies used by every family in America, and we intend to give away at least 25,000 DINNER SETS in order to do this. Do you want one? Please note the only conditions: Send us your name and address and we will send you eight boxes of our remedies; sell each box at 25c., and return us ONLY $1.00 of the $2.00 received for the sale of our medicine. This $1.00 is to show your good faith and that you really want the dishes. The second dollar you send us ONLY after you receive the dishes and have actually used them, and are entirely satisfied that they are equal to any $10.00 set you can purchase in the country. We trust you with the dishes and also with $1.00 received for our medicine. We do this because you may have been fooled by some fake concern; and we want you to thoroughly appreciate our honesty.

The dinner set consists of 56 pieces, and is FULL size for family use; including soup plates, dinner, tea, and bread plates; cups and saucers, cover dishes, coffee pot, butter and milk pitcher. They are handsomely decorated with blue, green and gold. Or we will allow you 50 per cent. commission for selling our assorted remedies.

COLONIAL MEDICINE COMPANY, No. 71 BROADWAY, Dept. 97, NEW YORK.

When Writing to Advertisers Please Mention This Journal.

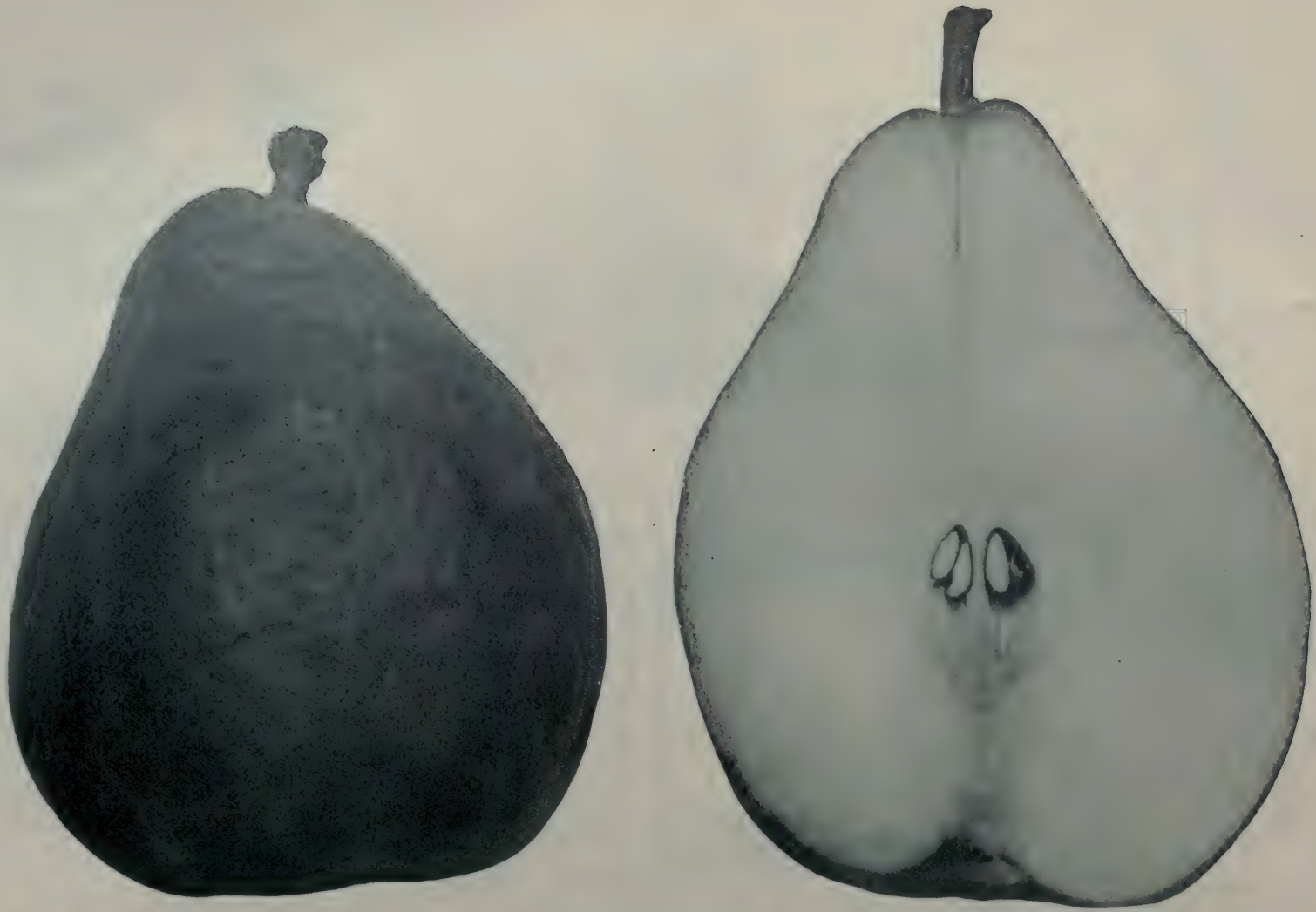


Fig. 2768. The New French Pear, President Mas.

The Canadian Horticulturist

APRIL, 1904

VOLUME XXVII NUMBER 4

PRESIDENT MAS

A NEW FRENCH PEAR OF FINE APPEARANCE

IT is contrary to our rules in editing this journal to give prominence to novelties that have not been at least fairly well tested by our fruit stations; but, for three years past, a new French pear, in our dwarf pear orchard at Maplehurst, has proved to be of such fine size and quality, and ripens during such a favorable season, that we feel warranted in using it as a frontispiece to this number, even before distributing it among our experimenters for further trial.

We have it dwarfed on quince stock, and the tree is doing fairly well; but, according to M. Baltet, Troyes, France, it is a weak grower on this stock and succeeds much better on pear stock. The tree appears to be productive. The fruit is very large and fine, yellowing in color as it ripens, somewhat like the Anjou. The flesh is melting, juicy, vinous, and very good in quality. Its season is December and January.

PEARS FOR EXPORT

IN planting pear trees, or indeed any kind of fruit trees, one needs to consider first of all the market in which they are to be sold. If they are to go to a near market, such perishable varieties as Giffard, Bartlett, Clapp's Favorite, Boussock, etc., are quite in place; but if intended for Great Britain or our own great Northwest, then varieties of better shipping properties must be chosen. It is only during the last few years that we fruit growers dared dream of exporting tender fruits at all; and, when cold storage accommodation was offered, many of us were over-confident and sent forward large quantities of those tender pears and peaches which we had originally planted with a view of selling in our own markets. The results, on the whole, of our experiments in exporting Crawford peaches, Bartlett pears, tomatoes and grapes, have been most discouraging, because these fruits would not stand up long enough after arrival to reach the consumers.

We must therefore advise our Ontario fruit growers against planting such kinds for export; and in favor of firmer fleshed

varieties. One of these is the Louise, a beautiful autumn pear, when grown as a dwarf on good rich soil; another is the Howell, a large yellow pear, following the Bartlett, and succeeding best as a standard. The dwarf Duchess is an admirable export variety when grown on thrifty trees, so as to be free from knots and scabs. It is large and has already made for itself a market in Great Britain. Another is the Anjou, a large yellow pear of delicious buttery flesh, which is easily kept until Christmas. The Bosc is another excellent export variety; it is a large and beautiful russety pear, with a long neck, of a delicious flavor when fully ripe. It does not succeed as a dwarf, neither does it make a good trunk when grown as a root graft on pear stock, and therefore it should be top worked on some good upright growing variety. For this some recommend the Kieffer; and we hope wisely, for there is no question that we have too many orchards of this miserable pear already planted in Ontario, and the owners will soon need either to root them out or to use them for top working with better kinds.

Editorial Notes

April is a busy month for the fruit grower. Winter has relaxed her icy grip and the fields and the orchards call for the owner's undivided attention.

* * *

Furrows and ditches should be kept open for the rapid escape of the surface water, so that the land may be the sooner ready for use. Stakes should be set along low places where water stands to mark where drains are needed.

* * *

Any land that remains too wet to spade or plow for more than a week after frost and snow have disappeared in spring needs draining; and the same may be said of land in which water is found in holes dug two feet deep for two or three days after a soaking rain.

* * *

Packages for fruit should be secured early in the season. This lesson was well learned last season, when barrels that could be purchased in July or August at 30 cents advanced in October to 50 cents, and were almost impossible to buy at that price. The basket makers will now store with the fruit grower as many baskets as he chooses to order, and wait until the fruit harvest for his money; and this opportunity is worth taking advantage of.

* * *

There is plenty of work for the rainy days; cleaning up and grinding tools, painting the woodwork of plows, harrows, cultivators and old wagons. Besides all the farm harness, much of which has been unused for months, now needs cleaning and oiling with great care.

The Raspberry Plantation

Interest in the growing of this fruit has again revived, owing to an improvement in prices, which a few years ago were so discouraging that many rooted up their plantations. Notwithstanding the many new varieties, the Cuthbert is still the leading commercial raspberry for main crop, though the Phoenix is worthy of a place with it in the opinion of Mr. Sherrington.

FIG. 2769. HOW TO PRUNE RASPBERRIES.

of Walkerton. Turner, Reliance and Marlboro are the best early varieties, the latter, however, having the preference both for shipping quality and productiveness.

Pruning the Raspberry

IF not already done, the work of cutting out the dead canes should be finished this month to give room for the new growth. Not only should the dead canes be cut out, but the superfluous young canes should be removed for five or six canes to each stool are quite sufficient, and too many will tend to choke the vigor of the plantation. The pruning of the bushes themselves should be done very closely, as the small, weak ends of the canes will not yield much fruit, and yet they withdraw strength from the bearing buds. These should be cut back to where the buds are strong and well developed; and the side branches should also be cut back in the same way as the canes, leaving short stubs from three to four inches in length. Both blackcaps, and red raspberries, the Cuthbert especially, may be treated in this way. The method will be better understood from the accompanying engraving (Fig. 2768) than from a whole paragraph of reading matter.

The Past, Present and Future of the Canadian Horticulturist

THE first number of this journal appeared at St. Catharines in January, 1878, so that on the first of January, 1904, it completed twenty-six years of its history.

That number was a little sixteen-page monthly, and as an introduction Mr. D. W. Beadle, who had been the efficient secretary of the Association since 1860, wrote as follows:

> The directors of the Fruit Growers' Association have long felt the importance of having a monthly publication as a medium of communication between the members, and a means of imparting information on subjects of interest more frequently and promptly than can be done by the annual report. And now, after careful deliberation, they have decided to make the experiment, and commence to-day the issue of the Horticulturist, in the hope that it will find favor with the members. It will be devoted chiefly to the publication of such information as is sought after by those who are interested in fruit culture, yet not neglecting those kindred subjects which are closely connected with that pursuit. The lover of fruits is also usually a lover of flowers, and delights to surround the house with a well kept lawn. It will therefore contain occasional articles intended to guide and help those who seek to cultivate flowering plants and shrubs, and to make their grounds bright with summer flowers. And if the less showy, but not less important vegetable garden should have a place now and then in these pages, there are those among the readers, it is believed, who will welcome any timely information in this department also.
>
> But while the directors will spare no pains to make the Horticulturist acceptable and profitable, it will nevertheless be, in a very large degree, what the members shall make it. If they shall use it as the medium through which they tell each other of success and of failure with particular fruits, flowers, trees, etc., then will it become what the directors hope, a mirror, in which is reflected continually the horticultural progress and skill of Ontario. They ask, therefore, that the members will regard it as their publication, put forth in their interests, to help them in whatever way they can, and to be used by them for the promotion of horticulture in this Canada of ours.

Mr. Beadle was well qualified to edit such a magazine, having had a college education as well as a practical training in horticulture. Under his able editorship the journal became very valuable to fruit growers, and the

membership of our Association grew from a couple of hundred to nearly 2,000.

In the year 1887 he was succeeded by the present editor, Mr. Linus Woolverton, of whom it is not our place to speak, except to say that his qualifications for the work were similar to those of Dr. Beadle, he being a graduate of the University of Toronto and having an extensive practical experience in both fruit growing and nursery business.

Thanks to the interest taken in our journal by the fruit and flower lovers of Canada, the journal has grown to more than three times the size of its first issue, and has now a circulation of over five thousand. It is quoted as an authority in fruit matters not only by Canadian, American and European journals, but even by governmental reports, all of which is a matter for congratulation.

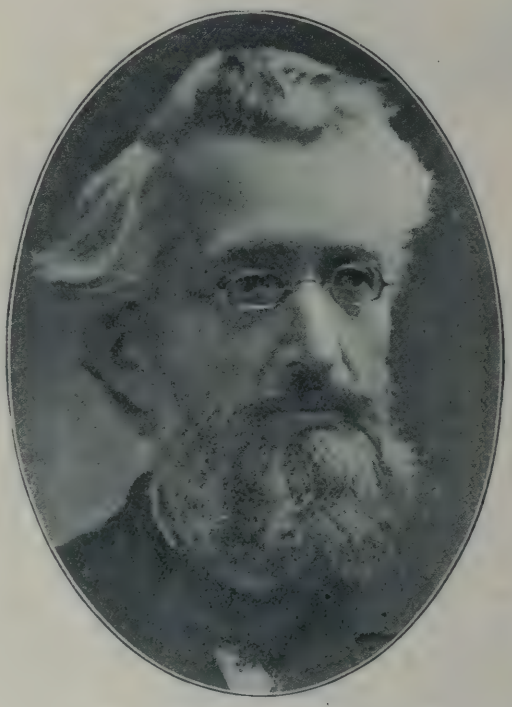


FIG. 2770. MR. D. W. BEADLE.

Two years ago the combined work of editor, secretary and treasurer for our Association became too heavy for one person, and Mr. G. C. Creelman was appointed secretary-treasurer, thus relieving Mr. Woolverton of that part of the work. No better organizer of men and affairs could have been selected, and his excellent work in working up fruit institutes, out of door meetings at our experiment stations, and local fruit growers' associations, has been most highly appreciated. But before he had time to perfect his plans for the benefit of fruit growers, he was invited to take a still more responsible position, and the executive committee of our Association was compelled to act quickly in the appointment of a successor.

Fortunately for us all, it became possible to secure the services of Mr. H. B. Cowan, the successful editor of the Ottawa Valley Journal, who though only a young man, has shown such marked ability in extending the subscription list of that journal and in making it popular among the farmers, that we have great confidence in what he is able to do for our journal and for the extension of the work of our Association. Although superintendent of fall fairs also, this will not prevent his giving a large share of his time to the business management and assistant editorship of the Canadian Horticulturist.

Mr. H. B. Cowan, the new superintendent of fairs, although only 26 years of age, has had considerable experience in public matters. In 1901, as editor of the Ottawa Valley Journal, he organized one of the largest plowing matches ever held in Canada. The counties in Eastern Ontario held county matches and sent their junior and senior champions to compete in the final match at Ottawa for the championship of Eastern Ontario and Western Quebec. The two

Provincial and Dominion governments furnished judges. His active efforts in favor of road improvement resulted in the formation of the Eastern Ontario Good Roads Association, of which he has been secretary since its organization. In this work he became known through planning and managing the good roads train which built several miles of model stretches of roads in the various counties of Eastern Ontario as object lessons.

Three years ago he arranged the first circuit of fairs ever held in the province. Ten fairs joined the circuit and secured the expert judges. The experiment was such a success that it has since grown rapidly throughout the provinces. He arranged for the holding of championship athletic meets at all the fairs, with a final meet for the champions at Ottawa. These contests have been held three years in succession, and have proved very successful. The offering of a banner for the best conducted fair in Eastern Ontario and Western Quebec was also Mr. Cowan's idea, and has roused great interest on the part of the eastern fairs. At various times he has acted as secretary at Otawa of the Dominion Live Stock Association and Eastern Ontario Dairymen's Association. During the past year he has been editor of the New England Homestead at Springfield, Mass.

FIG. 2771. MR. LINUS WOOLVERTON.

Mr. Cowan is also well known in athletics, having held the Canadian single blade paddling championship, and is rated as one of the best wrestlers in Canada, and in these days it is universally acknowledged that physical culture is an aid to mental vigor. He has shown great energy in pushing to a successful issue every project he has undertaken, and with such a man as business head we may expect, not only the carrying out of the many excellent plans laid out by Mr. Creelman, but also the inception of many new methods for increasing both the usefulness and attractiveness of the Canadian Horticulturist.

Mr. Cowan will begin his work with the May number, and will have in charge the "make up" of the journal as well as the advertising departments.

Codling Moths

MR. WILLIAM BRODIE, of Toronto, who is an expert student of parasitic insects, and whose studies have been carried on for many years, has offered to follow up his investigations into the parasites of the codling moth and place his findings at the disposal of the Ontario Department of Agriculture.

To carry on this work it will be helpful to procure from time to time burlap or other bands in which the codling moths have been caught. Some have already been received. Any fruit growers having bands now on

trees will confer a favor by corresponding with the Department of Agriculture at Toronto. If parasites can be obtained that will be effective in destroying the codling months, and they can be bred in sufficient numbers to distribute to favorable points, there may be accomplished a very valuable work in helping our apple growers to hold in check this most destructive enemy to our most valuable fruit crop. Apple growers all over Ontario should be interested in this important investigation.

Fruit Growers' Unions

Commission Sales Give Nothing to Growers

WE have reached a crisis in the history of fruit growing in Ontario. We have been piling our fruit into the big cities to be sold at whatever it will bring, and commission men have used fruit sent by one grower to cut prices with that sent by another, until we must call a halt or give up the business.

This was clearly brought out at a series of fruit growers' meetings held recently in the Niagara district. At the Grimsby meeting, Mr. Usher, of St. David's, strongly urged the adoption of some plan by which the fruit grower should be no longer at the mercy of the commission merchants. Last year he had shipped 15,000 baskets of fruit, and when at the end of the year he reckoned up all the expenditures for work, packages, etc., he found that he had no money left as an income from his fruits. "We should unite," said he, "and agree together that we will not produce a pound of fruit for less than two or three cents, as the case may be, and agree to stand by that price, even if we lose some fruit by it. How is it," said he, "that the canning factories are now getting double the price for canned fruits than they got some years ago, and the fruit grower gets less. Simply because the canners unite and the fruit growers do not unite to protect their own interests."

FIG. 2772. G. C. CREELMAN, B.S.A.

Union of Fruit Growers Needed

Every one seemed to agree that a union of some kind was most essential—a good strong union, which should include all the prominent fruit growers of the province; a union where members would agree not to sell their fruits below a certain price, and, if they shipped on commission, not to ship to rival houses. Every trade and business these days has its union, even the workmen employed by the fruit grower, and, if he, alone, will not agree to co-operate with his brother fruit grower, he must expect to get

the worst of it. But on what basis shall the union be formed?

Mr. Keyes, of St. Catharines, proposed a stock company for the Niagara District, with a capital of $200,000, and shares of $100. The company to buy several acres of ground, erect immense packing houses, and attempt to pack and ship all the fruit in the district. For the second grade an immense canning factory would be erected. This plan looked well on paper, but like all such stock companies might be a tremendous failure unless managed just right. And what central packing house, under one management, could handle the immense crop of peaches, plums and apples grown in the Niagara District. The conclusion therefore prevailed that each member of a union should pack his own fruit according to standards agreed on only by the company, and all packages would be subject to inspection by the manager or his assistants.

FIG. 2773. MR. H. B. COWAN,
Business Manager of the Canadian Horticulturist.

Where the Union Should Begin

The most common sense plan of union proposed was suggested by Mr. M. Pettit, of Winona. The greatest obstacle in the way of successful fruit growing is the selling; and here, in Mr. Pettit's view, is where the union should begin. An instance was given where grapes brought the grower only 15 cents a basket, and yet in Winnipeg these same grapes sold for 45 cents a basket! Similar instances, in the case of other fruits, were related, and it was plainly evident that the grower who spent his year's work and his capital in producing the fruit was receiving the least share of the selling price.

M. Pettit's Plan of Co-Operative Selling

Mr. Pettit would have all growers and shippers agree together that they would sell certain grades of fruit at certain fixed prices. He would have a managing board in each fruit district, which would meet every Friday morning and fix the prices for the quotations for the following week. No man should sell below these quotations, whether fruit grower, fruit buyer, or commission merchant; but in selling to the trade the producer would allow the dealer a certain regular trade discount. In carrying out this scheme, we suppose that a managing director would be the paid official in each centre, he would be in a position to take large contracts, to be filled by the union from surplus stock of which notice would be given the manager, and much of which would be held in cold storage until sold: while each member could make as many private sales as he chose, providing he kept up to the fixed price. This scheme does not necessarily contemplate

a stock company. A small percentage of the gross amount of the sales would pay the manager and the rent of a storage house for making up car lots. A large central cold storage warehouse would be an important adjunct and would of course require capital, and those not taking stock in it would of course have to pay for the use of it should they store in it. We presume that several district unions would cover the fruit sections of the province, and the managers of these could agree together on the fixed prices, and thus the output of the whole province would be under control.

What About the Surplus Stock?

Why, unless it can be sold to canning and evaporating companies it had better waste in the orchard than simply be unloaded on the market and bring down the prices. But, if properly distributed there is room in our own country for all the No. 1 grade of fruit we can grow, and we should spray, prune, thin and cultivate as to avoid wasting the vigor of our trees in producing No. 2 fruit.

Fruit Growers the Last to Unite

IT does seem that every other class of men are more ready to unite than fruit growers. Several reasons were suggested, one that they were too selfish to risk another's good for fear it might not prove to their advantage; another that they would not trust each other, but would believe every word of the sleek-tongued commission merchant, who offered them his stamp and promised a good market. Nevertheless it was agreed that the time had come for a union, otherwise the business would be ruined by foolish competition. The manager of a union would be able to avoid all competition by a careful system of distribution, and the expense of the whole business would be a much less percentage than that now paid the commission merchants, while the net returns would in many cases be doubled. Plainly this is the most serious and important question before us; let us face it and solve it as quickly as possible.

Early Plums

MR. R. S. EATON, of Kentville, N. S., writes:

Please give me your opinion on the time of ripening and the quality of the new plum, the Emerald, as compared with Abundance and Red June.

Though not as showy a plum as the Japans, and not quite as large, yet the Emerald is, in our opinion, a better dessert plum; while in point of season it is about ten days in advance of either the Abundance or the Red June. We have not yet fully tested it at our stations, so that we are unable to give any very definite reply to our enquirer.

Mr. Murray Pettit, Winona, Our Director for Wentworth, Waterloo, Halton, Etc.

AT a meeting of our Association, held at Wingham in 1885, Mr. Murray Pettit, of Winona, was elected a director of our Association, and has held the position ever since. He was born in 1843 on the old Pettit homestead, near Winona, where in the latter part of the 18th century his grandfather, Mr. John Pettit, a U. E. Loyalist, had received from the crown a grant of 468 acres of land.

Grape Growing

Some thirty years ago Mr. Pettit first turned his attention to the cultivation of the grape, a fruit which in his experience has proved to be a more constant source of revenue than the peach. He was one of the first to plant a vineyard of Niagara grapes, under the original terms of the company, in that each buyer should give in one-half of the proceeds until the company had received $1.50 per vine. This investment proved a profitable one for Mr. Pettit, the three hundred vines planted in the spring of

1882 yielded his in the fall of 1885, not three years from the time of planting, an income of $1.84 a vine, or $553.20 for the three hundred vines. The average price was about 12 cents a pound, and the proceeds at the rate of $800 per acre.

His Public Spirit

Mr. Pettit has ever been ready to serve the fruit growers of Ontario in any public enterprise. He was long a director of a local fruit growers' association, and at one time president; also for years a member of the Niagara District Fruit Growers Stock Co., a sort of co-operative organization for the sale of fruit. His name has always been a prominent one on deputations and committees, as for example for securing legislation against the Yellows or against the San Jose scale.

Experimental Work with Grapes.

When an experimenter in grapes was needed it was most natural that we should turn our thoughts to Mr. Murray Pettit; for not only had he one of the largest vineyards in the district, but he had himself been doing experimental work for many years, and had already a row of about 100 varieties, carefully labeled, from which he was making himself acquainted with varieties. Our Board of Control furnished him with all other varieties of any promise, and have thus secured in Mr. Pettit a fruit experimenter who is thoroughly posted in his specialty, the grape.

FIG. 2774. MR. MURRAY PETTIT,
Experimenter in Grapes for the Province of Ontario.

At our Leamington meeting Mr. Pettit gave us much valuable information, and at

A House Meeting of the Grimsby Horticultural Society

the principal feature was his address on "Grape Growing for Profit." He first gave a very interesting review of the history of grape growing in the Niagara Peninsula. In 1860, when King Edward, then Prince of Wales, visited this district, only four varieties of grapes were under cultivation, and prominent among them the old Isabella, now entirely discarded.

It was in 1876 that the first shipment of grapes by express was made from Winona, and this was probably about the first made in the province. Since that time the industry has grown to a wonderful extent, and now it is not an uncommon thing to see eight or ten carloads a day sent forward from this station.

A Reliable Crop

After thirty years of experience in grape growing Mr. Pettit claims that grapes are among the most reliable fruits for profit, because the yield is more constant, the price less variable, and the vine is less subject to insects and diseases than other fruits. True, prices have fallen to a low figure compared

with those early days, when it was a common thing to sell them at 10 cents a pound. Nowadays we seldom get more than two cents, and often only about one cent a pound; still, by economical management and by growing such productive varieties as Concord, the fair profit can be obtained.

In his opinion the Kniffen system of training the grape is the most economical, with two wires and no summer tying. He would put the rows 10 feet apart and plant Delawares 6 feet apart in the rows, and strong growers, such as Concord and Rogers, 10 feet apart.

Mildew

The chief hindrance to the successful marketing of the grape is the mildew, and the shipping of unripe and mildewed grapes does more than any other thing to discourage their sale. And yet it is easily controlled by the application of powdered sulphur. He used about a tablespoonful to a vine at each application, throwing it over the vine, or partly on the ground underneath it. He gave the first application about the 1st of June, when the young grapes were about the size of shot, and the second about two or three weeks later. Most of the injury from mildew is done about the middle of June.

Soil for Grapes

With regard to soils, Mr. Pettit favored one of a somewhat heavy texture, for on deep rich sandy loam some varieties were too much inclined to go to wood and too little to fruit. He had noticed a difference of from ten days to two weeks in time of ripening in favor of those grown on clay, and also a sweeter flavor.

Horticulture Includes the Fruit Garden

The evening was a most enjoyable one, a portion of the time being given up to music and conversation, and we believe that if all our horticultural societies would have fruit meetings as well as flower meetings there would be no need of additional organizations for the fruit grower in any locality where such a society exists. Horticulture, or garden culture, properly includes the fruit garden as well as the flower garden, and many of our societies have became weak by trying to confine their attention to the latter department.

Lawn Decorating

TOO little taste is shown by our farmers and fruit growers in the surroundings of the home, and very few seem to appreciate the great importance of a well kept lawn. Even some of our professional gardeners seem to think a front lawn must be half filled with trees and shrubs to be at all complete. Nothing is so beautiful as an open lawn, kept evenly cut; and the place to plant trees and shrubs is not in it, but on its borders, to hide fences or objectionable views, and to close it in somewhat as a frame does a beautiful picture.

A cozy corner at one side, half hidden by pretty ornamental trees and well shaded from the sun, is a great source of pleasure in summer. In such a corner the hammocks may hang, inviting the reader with his entertaining book, or the rustic seat, backed with soft cushions from the house. A pretty rustic seat was shown some time

FIG. 2775. SHADY RUSTIC SEAT.

FIG. 2776. THE WALLACE POWER SPRAYER.

since in American Gardening, made either of natural tree branches, or of smooth sticks closely covered with bark or a combination of both, as in the engraving. Vines planted at the ends and at the rear will soon cover such a seat and give a delightfully cozy nook.

Compressed Air Sprayers

AT the meeting of fruit growers in Beamsville on the 16th inst., the Wallace Sprayer and the Tweedle Sprayer were both on exhibition, and both did excellent work. Mr. Tweedle gets a reservoir tank of galvanized iron filled with compressed air by a stationary gasoline engine, at the point where the mixtures are prepared, and this, together with another galvanized iron tank holding the mixture, is not a heavy load for the horses to take through the orchard. Mr. Tweedle had also a spar of eight or ten nozzles, which by a pulley he elevates along a vertical gas pipe, so as to spray the highest apple trees in a few minutes. The whole outfit, including the gasoline engine, is valued at about $500, and would make a capital co-operative outfit.

The Wallace Power Sprayer takes its power from the wagon wheel, and is not as expensive an outfit. It is readily thrown in and out of gear, and a short drive will get up the air pressure in the reservoir above the tank to 80 or 100 pounds to the square inch. The weight of the whole outfit, with a half round two hundred gallon tank, wagon and all, before adding the mixture, is about 1,400 lbs. Add to this two hundred gallons of mixture, and the turning of the power wheel, and you have a fairly good pull for a team of horses, which, however, granting the ground is firm, will not be too great. This is another machine suitable for co-operative work.

We show above a cut of the Wallace Sprayer complete, and below we show also a cut of the Little Giant Spray Pump, manufactured by the Perkins Manufacturing Co. This latter machine we have not yet seen, but judge might be useful for the individual orchardist, who does not wish to use the co-aperative pump. The cost of this is from $100 to $125.

Thinning Apples

TO thin our apples in such a way as to bring to maturity only the finest fruit is no small undertaking, and it is still an open question whether the work would pay for the extra work. Mr. S. A. Beach, of

FIG. 2777. THE LITTLE GIANT SPRAY PUMP.

A Canadian invention. The pump takes its power from the wagon wheel.

Geneva, who has been making some experiments, has estimated the cost of thinning a well loaded apple tree at 50 cents. In seasons of heavy crops thinning was found to heighten the color and to increase the size; but in case of a small crop being set, it had no appreciable effect. It would seem therefore that for growing fancy grades of fruit that an advantage might be gained by thinning. The work must be undertaken early, within three or four weeks after the setting of the fruit, even if the June drop is not over yet.

The Canker Worm

THE usual method of fighting this insect enemy, now so widely distributed, is by spraying with Paris green about a quarter of a pound to 40 gallons of lime water, early in May, or just as soon as the young caterpillars appear, and by giving a second application about a week later. This is more certain in its effects than the use of sticky bandages for preventing the female from climbing the tree; but the work should be done while the larvæ is still small, because then it is more easily destroyed. Experiments conducted by V. H. Lowe, of Geneva, N. Y., indicate that arsenite of lime is equally as effective as Paris green, when properly applied, and has two advantages, (1) its cheapness, and (2) the fact that it will remain suspended in water much longer.

Horticulture in Nova Scotia—Two Valuable Plums

THE report of the School of Horticulture of Nova Scotia for 1903, F. C. Sears, director, has just come to hand, and shows good progress in the school work during the past year. Owing to the similarity of climate in Nova Scotia to that in England, it is found that English varieties are better adapted to the climate than American. For example, two recently imported varieties of plums are very promising for market purposes, Cox's Emperor, in season October 1 to 15, and Late Orange, ripening about 10th October, and keeping until November. Both are yellow in color, the former nearly covered with a deep red; the latter, larger, and all yellow in color, and the flesh is firm, fine grained and meaty. Speaking of this latter plum, Mr. Sears says: "Coming so late in the season when plums for canning are in great demand, and when most other varieties are gone, it must certainly prove a valuable market sort, unless it develops some weak points after further testing." We will have this plum tested at our fruit stations as soon as possible, and see if it suits Ontario conditions.

Misleading Instances of Profit

SEVERAL times already in this journal we have pointed out the evil of publishing remarkable instances of profits made in fruit growing, without explaining that the cases were unusual; thus giving the uninitiated exaggerated notions of the profits of our business. We could cite numerous instances of persons who have given up remunerative occupations to invest their capital in a fruit farm, thinking they would have a bonanza. Imagine the disappointment in many cases at finding the expenses of labor, packages, express and commission charges so nearly covering the gross proceeds that almost no income is left for the owner's time and investment! Indeed, in some instances, where the varieties are ill-chosen, and the season unfavorable, there is a positive loss, after a whole year's waiting and expectancy! Why is it that the dark side of fruit growing is concealed and the bright side only advocated? Do our fruit growers wish to have the whole country in fruit? Do they invite so much competition in their business that the markets will be glutted and their fruit become unsalable? Or do they wish to boom some

nursery and help the sale of fruit trees? We notice even in the annual report of the School of Horticulture of Nova Scotia the following statement:

"As an instance of the revenues growers are securing from their orchards I may cite a small Nonpareil orchard belonging to Mr. W. C. Healy, of Round Hill, Annapolis County. There is about an acre of land in the orchard, which gives two hundred barrels of apples. These sold at $2.50 per barrel, or $500 for the acre. Deducting 50c. a barrel, which is Mr. Healey's estimate of expenses, we have $400 left as the profit on the acre, which is not at all bad."

We presume this is an advertisement of Mr. Healey's farm, in order to sell it for an extravagant price to some innocent capitalist; otherwise how are we to explain this statement, given without comparison with less profitable orchards? Why does the report not qualify the statement by at least saying that it was exceptional, or that as a rule the orchard only gives a crop each alternate year?

Arsenite of Lime Instead of Paris Green—Cheaper and Better

OF the substitutes for Paris green this one seems to be the cheapest, not being quite half the price of that article. It remains suspended in water much longer than Paris green, and it can be conveniently made at home.

The following directions for making and handling arsenite of lime are given in the M. A. C. Record:

"Dissolve the arsenic by bottling with carbonate of soda, and thus insure complete solution; which solution can be kept ready to make a spraying solution when wanted. To make material for 800 gallons of spraying mixture boil two pounds of white arsenic with eight pounds of sal soda (crystals of carbonate of soda, 'washing soda,' found in every grocery and drug shop) in two gallons of water. Boil these materials in any iron pot not used for other purposes. Boil for fifteen minutes or until the arsenic dissolves, leaving only a small muddy sediment. Put this solution into a two gallon jug and label 'Poison, stock material for spraying mixture.'

"The spraying mixture can be prepared whenever required, and in the quantity needed at the time, by slaking two pounds of lime, adding this to forty gallons of water, and pouring into this a pint of the stock arsenic solution. Mix by stirring thoroughly, and the spraying mixture is ready for use. The arsenic in this mixture is equivalent to four ounces of Paris green."

FIG. 2778. MR. J. L. HILBORN, LEAMINGTON.

Our Director for Essex

IN giving out readers an account of our Leamington meeting, we had hoped to also give a sketch of Mr. J. L. Hillborn, our director for that section, whose untiring energy over details so much of the success of that meeting was due.

For a long time Mr. Hillborn has been a familiar name, as being one of the leading fruit growers of Lambton County. About eight years ago he removed from Arkona to Leamington for the purpose of taking up peach growing. Here he purchased a peach farm right along the north shore of Lake Erie, and named it Peach Bluff. Forming a partnership with Mr. McLaughlin, who has been in his employ for eleven years past, he set twenty-eight acres to peaches, a few acres to sweet cherries and

plum trees, and three good sized greenhouses. Besides these, the firm have about 2,000 yards of cotton, which are used for forcing vegetables and cucumbers in early spring.

We take the following details from the Leamington Post:

The growth of early vegetables and fruit has proven very profitable during the past few years, and the new firm, with increased facilities, will enlarge their building, add to their greenhouses, and plant more extensively. The firm have already three greenhouses, two of them very large, while they also have what is known as cold frames which require sixteen hundred yards of cotton to cover. In irrigating their land they use an elevated tank holding 6,000 gallons of water. This is conveyed by pipes and carefully distributed as required. The greenhouses are used only for forcing early vegetables. A windmill keeps the tank filled. A perfect system of waterworks at a cost of $400 is the result. In addition to growing early vegetables, which have so far been very profitable, they have nearly 5,000 trees, mostly peach. A few plum, cherry and pear trees are also grown. The principal business will be peach culture. Mr. Hilborn, who has lately been in Michigan examining the methods in use there, has very advanced ideas, and is one of the most progressive fruit growers in the county. Everywhere on the farm are evidences of thrift and prosperity. His buildings are all neatly painted, and no weeds are allowed to grow to the detriment of the crop. The new firm know what is required to ensure best results, and have sufficient capital to carry out any plans desired. During the past few years Mr. Hilborn has carried on a very extensive business; has built up a good trade; has made good business connections, and the new firm will be sure to enter upon a period of increased prosperity.

Labels for Varieties

MANY people find a pleasure in having about their homes an interesting collection of trees and shrubs, but, through neglect in labelling, by and by forget the names of the varieties planted and consequently half the interest is lost. For the orchard, perhaps the old fashioned nursery stake, painted white and tarred on the part which goes in the ground, is as good as anything; but if something more desirable is wanted, and at the same time neater for use in the ornamental grounds, cast iron labels, such as shown in our cut from Popular Gardening, are more desirable. To get a stock of them, make a model of wood, 10 or 11 inches high, one inch wide at the shank, the head four or five inches across and two inches wide, as shown in our engraving, and send it to the foundry. Paint them white, and write the names in black, with a brush and paint, first outlining the letters with a pencil.

FIG. 2779. TREE LABEL.

For large trees a simple label, *e. g.*, Scarlet Oak, is shown, made of a piece of tin about four inches long by three inches wide. Bend down about half an inch of the upper edge at a right angle, which will form a little coping for the label; then make two little holes just beneath this and pass a strong copper wire through them, firmly nailing it to the tree.

Bunching Asparagus

SO much depends upon the shape in which the produce of the vegetable or fruit garden reaches the market, that no one who aims at success can afford to be negligent in this matter. In putting up asparagus for market a buncher will prove a great convenience, enabling one to make the bunches of uniform size, and to tie them firmly. Raffia makes an excellent material for tying, or the inner bark of the basswood tree, such as is often used by nurserymen in tying buds. After cutting, sorting and washing, lay the stalks in the buncher, with

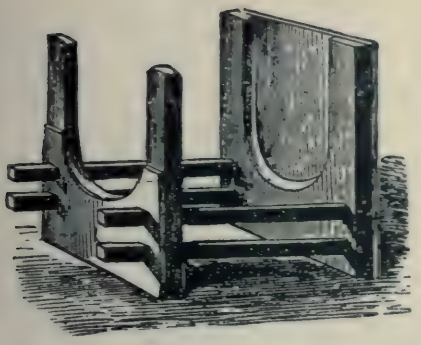


FIG. 2780. ASPARAGUS BUNCHER.

the heads evenly placed against the top. The bunch should be made about eight or nine inches long, and about four and a half inches across the butts. Press firmly and tie in two places, one about three inches from the top, and another about four inches below that.

Crates for shipping asparagus can be easily nailed up at home on rainy days, if the material is at hand. This can be had from the nearest mill, and the parts should be ordered as follows: Ends and middle, 12 x 18 x ¾ inches; bottoms, sides and slats, 28 inches long; the bottoms to be nailed close together, the side boards 6 inches wide, with slats for rest of sides and cover, leaving good ventilation. Put two inches of wet grass or moss in bottom, on which stand the butts, so that heads will be about an inch below the top. Pack tight with wet moss to keep in place.

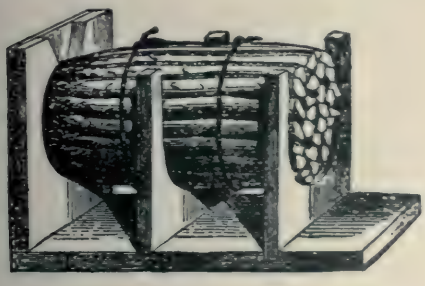


FIG. 2781. THE BUNCH TIED.

Some Good Climbers for the Porch

IF beauty of floral display, and not shade, is the object of planting a climber, we know of nothing which surpasses the Clematis. Although tender in the young wood so that it is usually somewhat killed back in winter in Ontario, yet the growth of the vine is so rapid that it soon makes a good display. For the veranda, as an ornamental screen for a lattice fence, for growing in masses on rockeries, the Clematis is perhaps the most desirable of hardy perennials. Jackmanni has the most showy flowers; they

FIG. 2782. CLEMATIS PANICULATA.

are large, and in color an intense violet purple, rich and velvety. Virginiana, shown on page 129, is a native of Ontario, a remarkably vigorous grower, with a numerous show of small flowers in August, but not very ornamental Henryi is a beautiful clematis for ornamental purposes; the flower is very large, and creamy white. It makes a fine contrast with Jackmanni.. But for general excellence as a climber we know of no clematis that surpasses Paniculata, shown in Fig. 2782. This shows a vine only five months planted, which proves it to be a

FIG. 2783. CLEMATIS ON PORCH AT KINGSTON.

rapid grower. It is perfectly hardy, and produces a mass of pure white star shaped flowers, which are sweet scented. These appear in August and September, being borne in long panicles, and are very pretty, though the individual flowers are small. This clematis will not be out of place anywhere, whether climbing a veranda post or hiding an ugly fence, and we speak of it with confidence.

APPLES FROSTED AND SMOKED

A NUMBER of shipments of apples, which had been lying in Halifax for several days awaiting the sailing of a vessel, were recently found by the fruit inspectors at that port to be seriously frosted and badly smoked when loaded on the steamship. Mr. McKinnon, chief of the Fruit Division, Ottawa, consequently advises shippers in both Ontario and Nova Scotia to take extra precautions in the packing of their apples, so as to guard against the cold weather which they are now almost sure to encounter in transit. In addition, shippers should make sure that the heating apparatus in the cars is not liable to smoke. Having done their part in these respects, they might also consider the advisability of taking concerted action to impress upon the railway companies the need of better attendance in the case of fruit cars en route.

THE PRINCE EDWARD ISLAND FRUIT GOWERS' ANNUAL CONVENTION

I FEEL that my horticulturist friends in Ontario may expect a line from me, now that our annual meeting is over, on the work we are trying to do here in orcharding. I shall not attempt to load your columns with the matter of any of the reports, papers or addresses which form the transactions of our association, but merely state in general terms that we assembled in Charlottetown this year on the 3rd and 4th of February, with all the best orchardists in the province in attendance, and Messrs. W. A. McKinnon, A. McNeill and Saxby Blair from without. Our meetings were most enthusiastic all the way through, the night ones being crowded to the doors, and they all furnished much instruction which must ultimately benefit horticulture here.

The fruit show was a revelation to even ourselves. This was the off year with us, and the season was late and the fruit crop as a consequence retarded in growth and ripening. Still, there was never such an apple show here, and the pears were splendid as far as they went; also Mr. McNeill attended the Nova Scotia show before coming here, and certainly Nova Scotia has fine fruit this year and lots of it. He was also at your Ontario show, but he did not hesitate to say that little Prince Edward Island's exhibit of winter fruit was *facile princeps*. We did not expect this verdict this year. We have ambitions in that direction for some near period in the future.

Of all our apples the Baxter and the Gravenstein elicited most agreeable surprise. Of the former I can only say that it is not widely enough grown to be pronounced on definitely; but it is a beauty, and Mr. A. A. Moore, a large grower, declares it everything that can be desired. He gives the lie direct to many of the unkind things your Ontario committee said of it some few years ago. Do you ever revise your judgments? Of the Gravenstein I can only say that we can equal, if not excel Nova Scotia, and ours is a month later. That means much for us in tempting the British market. Our association has done its share in stimulating fruit growing in the past year. It has now the whole province behind it. Education is omnipotent in this regard at least. As to the amount of aid received from the public chest, it is still absolutely incommensurate. But it is coming up a notch yearly. The papers read were all of a superior class. Vice-President Johnstone's on "The Need of Grafting and My Experience With Same," was one of the best papers we have ever had, and Chief McKinnon declared openly that he had never heard its equal. Mr. Registrar White's paper on "My Experimental Orchard" brought out much practical discussion on varieties and culture. Senator Ferguson's, on "The Apple Market," could not be well bettered, and the other papers and reports were all of absorbing interest. Of course Chief McKinnon gave several of his pleasing and profitable addresses on matters connected with the commercial side of apple growing, and A. McNeill was a host in himself on anything and everything connected with horticulture. He addressed the young people from the cottages, come in to see what a fruit growers' convention was like, with the same ease as he struggled with that interesting question, "Is the Gano and the Black Ben Davis Identical," or "What is the influence of the stock on the cion and vice versa?" Then we had W. Saxby Blair's splendid address on "How to Conserve the Moisture of Or-

chard Soils." And there were demonstrations—always intensely interesting—in pruning, grafting, packing, etc.

The president's address resumed the work of the year, and pointed out the needs of the times. He wants co-operation as a necessity here where orchards are small and mixed; a subsidized line of steamers to Britain; uniformity in packages (the convention adopted the 10 x 11 x 20 box); registration for tree sellers and grafters, and better transportation, with lower rates by rail and water. He dilated on the value of the domestic market too, and advocated the jamming, pulping, evaporating of inferior fruit. The matter of central councils initiated here was further advanced in details.

The president and executive were heartily thanked for the services rendered in the past, and the onus of office placed again on their shoulders, the government being asked, by special resolution, to make some attempt to recompense them. Replying, as president, I acknowledged my deep obligation to the association for the great honor conferred upon me so persistently, and promise faithful service, although some one else might more worthily preside over its destinies. The only new name on the board is that of Edward Bayfield, Esq., a past president.

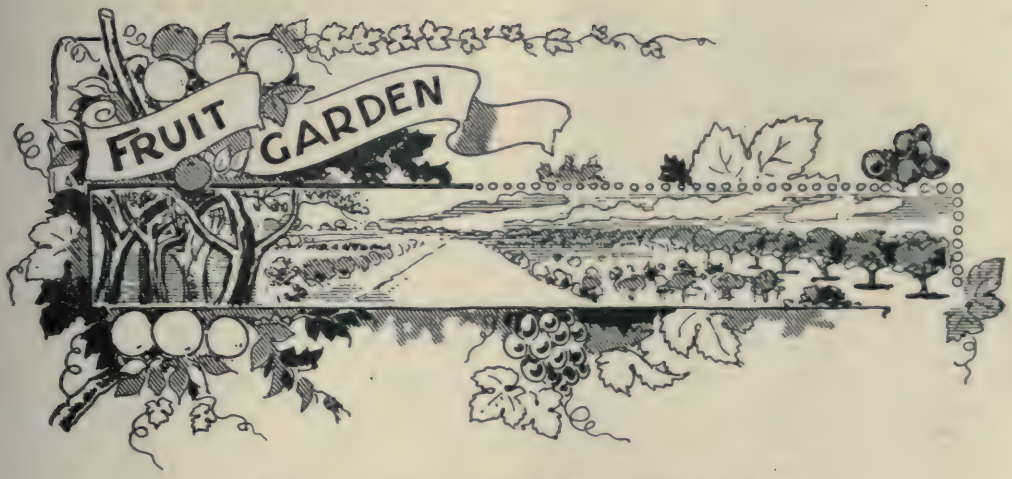
Everything points to a good year for horticulture here. We extend our best wishes to our Ontario co-workers, and hope that every movement of our associations may be upward and onward for Canada.

A. E. BURKE.

Alberton, P. E. I.

FIRST FLOWERS OF SPRING

HOW many know that one's own home yard can become a wondrous spectacle long before the shady covert of the woods sends forth the wild bloom? So early as the first of March, or even the last of February, we welcome the dainty Snowdrop, modestly drooping its dainty cups, even while the snow lies heaped in shady nooks near at hand. Then the Crocus, of various colors, puts forth a plea for recognition. Among the earliest blooming varieties of these bulbs are the small yellow with black stripes, quite unique. Then the large white, pure large yellow, purple, and a novelty among them is a certain red-blooming variety with slender, pointed flower-cups, distinct from the others. Then comes, almost at the same time, our Glory-of-the-Snow, a dainty white and blue flower only lately introduced. But chief among these spring beauties, and held as prime favorites, comes the marvelous bloom of a whole forest of Scillas. Then, indeed, does summer seem to be upon the way, when the bees are wild with delight, and the blue and white mystery looks up laughingly and demands whether there was ever anything half so sweet or winsome, just at home. Borders of these are very attractive for the garden beds or set in little groups in the midst of the sod upon the lawn, where they do quite as well as elsewhere, and are sure to surprise somebody. They seed themselves, and increase very rapidly, and will bloom all through April and May. It is well worth the trial of flower lovers to invest in these earliest of spring flowers, so easy of culture and so delightful.—*Vick's Magazine.*



FALL AND WINTER PEARS

FINE-SKINNED, smooth Bartletts still seem to hold their own for the late summer and fall trade. The heavy yield of these trees, and the ready market which they find, makes them a profitable pear to grow. Bartletts are not by any means the best pears for home use, for the common Sackel, Flemish Beauty, and many dwarf varieties far surpass them in my estimation, but owing to the handsome appearance of the former fruits they will always command good prices. The buying public still judge of fruits largely from their outside appearance. The Bartletts are juicy and sweet, but one soon sickens of them if plenty are to be had. They ripen so rapidly, and then become so soft and squashy, that one must use haste in selling them. They should be pulled off the tree when quite green, and allowed to ripen in a dark room to get the best results.

The old Flemish Beautys are bright, red-cheeked pears with a dark, greenish color, but of late years they crack open and spoil in many sections, so that they are unfit for market use. The flavor of these pears is delicious, and beyond comparison. They never sold very well in the general market, and of late years their cracked surfaces have caused them to fall into greater disfavor. Those who know them, however, would always prefer one to almost any other variety of pear, cracks and all included. The cause of this cracking open of the fruit must be due to the soil in some way, but the weather is partly responsible for their injury. In very wet seasons the cracking is a great deal worse than at other times.

The Anjous come in later in the season, and owing to their tough skins are enabled to stand inclement weather. They are very seldom knotty and cracked, and they sell pretty well in the average market. They are abundant producers, and should not be neglected in any orchard. The stings of insects cannot injure these pears as much as the Bartletts or Flemish Beautys, for their skins are so tough and thick that the stings hardly penetrate through to the meat of the fruits.

Good fall and winter pears are always in demand, and owing to the small quantity grown the prices are generally high. They should be ready for market just at the close of the season for summer fruit. This is generally when the grape supply is begin-

ning to dwindle down. There is a demand for fruit then, and it can be supplied with the late fall pears; but if one waits too long the hothouse fruits come in and cause prices to decline. Some of this fruit can be kept for the holidays, but only such pears as have fine, fair outside appearances.—*American Cultivator.*

TREATING FROZEN PEACH TREES

THE very cold weather of the past two months has done great damage to the peach trees of New England and Hudson valley in New York. In a very large majority of cases the fruit buds have been killed and the crop of 1904 annihilated. In a large number of instances the wood has also been frozen and the trees damaged. Hundreds or even thousands of trees are reported to be killed to the ground. It is quite certain that a large proportion of all the trees are killed back more or less.

The best treatment for peach trees thus injured by freezing is to cut the tops back in proportion to the damage. In any case it will be proper to cut away all the dead wood, leaving only that which is strong enough to make a fairly vigorous start of buds in the spring. This can be determined in general by cutting into a branch with the pruning knife. If the wood is black inside, or if it shows considerable discolored layers, it is probably either dead or so much injured that it will not start its buds vigorously.

In cases of moderate freezing, this rule would require only the removal of the shoots grown in 1903. In more serious cases it would be necessary to cut back into two-year-old wood. In a deplorably large number of orchards it will mean cutting away all the main branches, leaving only the trunks and a few stubs. Even such severe pruning as this is practicable, particularly with young trees, and is far better than sacrificing the trees altogether.

It will probably be useful also, in connection with the cutting back of frozen trees, to give them a vigorous start in the spring by early cultivation of the ground and by the application of a small amount of some quick-acting nitrogenous fertilizer like nitrate of soda. In applying nitrate of soda, from three to five pounds should be given to each tree.—*American Agriculturist.*

REHEADING PEACH TREES IN ORCHARDS

IN American Agriculturist last winter attention was called to the changing of one variety to another in a well established peach orchard; also pictures were shown of a large orchard that had been cut back and new heads started. The discarding of the unfavorable and unpopular varieties, cutting back the heads and rebudding another variety on the same tree is becoming more popular year after year as fruit growers become familiar with conditions.

A young orchard on the eastern end of Long Island, which was being changed from one variety to another, was inspected last summer. The trees were four years old and were making a splendid growth, but the

variety, Triumph, was very susceptible to rot and not considered profitable. The owner, John W. Hand, of Suffolk county, decided to bud the whole block with Champion. The tops of the trees were cut back in March. The orchard was given thorough cultivation.

The trees made a magnificent growth. They were budded about two weeks later and will be cut back again this spring to the dormant buds. In this manner a profitable and choice variety of fruit will be secured by the loss of the crop two years in succession. At the same time the trees will have a root and trunk system that will make up for this loss during their fruiting period. Mr. Hand is one of the successful fruit growers on Long Island who does not depend upon what others do, but goes ahead and finds out for himself what varieties best suit his condition. He is the pioneer fruit grower in his section.

THE ORCHARDS IN SPRING

NO time of the year requires more intelligent work than the spring to make visible results in the bearing of the trees and vines. The work needs to begin early, and it should be conducted well through the growing season until the crops are harvested. More and more are successful orchardists becoming convinced that there is money in all of our fruit crops, from strawberries to apples, if proper attention and cultivation are given. We are raising up as a consequence a generation of fruit growers who get the most possible out of their orchard trees at the minimum risk from blights, insects and other pests. We no longer recognize off years in the orchard; years when the crop is next to nothing, while the following season's crop is so large that the markets are glutted and prices very low. By careful cultivation, pruning and thinning out, the old-time trees that used to produce big crops in alternate years now yield a fair crop every season. If they won't do this, then root them up and plant varieties that will. To make orcharding successful we must be able to depend upon a good crop every season and there are plenty of trees that will do it for us. But if you let the trees take care of themselves, they will do as they used to do, produce such a big crop this year that their vitality will not be up to the mark of yielding much fruit next. So they will take a season off, and the owner will say this is the off year for his apples.

By pruning, thinning out and fertilizing our orchards we strike at the very secret of the success of the trees. In pruning we keep the vitality of the trees in proper limits. It is not allowed to spread itself out in dozens of useless and formless twigs and limbs. By keeping the trees into a certain form and symmetry we conserve their powers and energies. Likewise in thinning out the fruit we enable the tree to send all of its vitality into the few fruits left, and they are larger and fuller in every way. Some parts of a tree are permanently ruined by permitting too heavy loads of fruits to mature on them. Let the bearing be as even and uniform throughout the tree as possible, and the fruit will be better for it this year and succeeding years. There is a great art to be learned in thinning out the fruits of any orchard, and the secret of it all must be learned by intelligent experience. Then there is the need of adding fertilizers to the soil of the orchard. Plow and harrow and

summer fallow until July. Then put in some chemical and green crops to be incorporated into the soil later. A couple of hundred pounds of muriate of potash and acid phosphate added and plowed under with a crop of clover or rye would work wonders in an orchard. It would not take many years to notice a change in the size and quality of the fruits produced.—*American Cultivator.*

PLANTING PEACHES

ONE year No. 1 trees are better than smaller or June-budded trees. The varieties and their arrangement should depend upon the location. Early and hardy sorts should be on warm and early land, so that they will come on before the bulk of the crop. The late sorts should also be on sunny exposures if they are hardy, as on the north slope they would lack color and fail to ripen. The Crawfords do well when planted on northern slopes. Purchase the trees of a reliable nursery and be sure that they are free from root aphides.

Prune the tree to a single stem, cutting it off at the height of two and one-half feet, but do not remove suckers that form until midsummer. To keep off the borers wash the trees with a preparation of one pound of sulphur, three pounds of copper sulphate and enough lime to make a thick paint, when three gallons of water has been added. Scrub the trunks and larger branches, using a stiff brush. Cultivate until the first to the middle of August. Beans seem a good crop for the first year or two. No fertilizer is necessary for the first few years, except when needed to supply food for the crop that is grown between the rows.

A little clay may be placed about the trees to advantage on light, sandy soil. A late growth should be avoided, and if rye is sown the middle of August it will aid in doing this, which will be of far more value than the food it will furnish. Plow under in the early spring. If too late it may prove a disadvantage. A little wholesome neglect in the way of cultivation late in the season will also be desirable.

Banking of the trees is advisable as it lessens the injury from freezing and the action of ice and frost on the trunks.—*Michigan Farmer.*

THE CHERRY ORCHARD

A STRONG, loamy soil, and one which is retentive of moisture, is the most suitable for sour cherries. The fruit contains such a large amount of water that it is necessary to save the moisture of the soil to the greatest possible extent. Dry clay knolls produce cherries of less size and of inferior quality than the moisture depressions between them. Very early and thorough cultivation is essential to this conservation of moisture, and the tillage should be continued at frequent intervals until the fruit is about ripe. In order to be able to cultivate the soil at the earliest moment in the spring, the land should be either naturally or artificially well drained. The crop of even the

Morellos is off the trees in July, so that there is abundant opportunity to sow a catch crop on the orchard for a winter cover, if the manager so desires. A variety of plants may be used for this cover. The best is probably crimson clover, particularly if the orchard needs more nitrogen or growth; and, if American grown seed is sown by the middle of August in a well prepared soil, the clover will probably pass the winter safely. Other plants which may be used for cover are rye, winter wheat, vetch, field pea, sowed corn, millet and buckwheat. Of these, only the two first will live through the winter and grow in the spring. In using cover crops which survive the winter, it is very important that they be turned under just as soon as the ground is dry enough in spring. As soon as the plant begins to grow it evaporates moisture and dries out the soil; and it is more important, as a rule, to save this moisture than it is to secure the extra herbage which would result from delay. This is especially true with the sour cherry, which matures its product so early in the season, and which profits so much by a liberal and constant supply of soil moisture. Plowing can also be begun earlier on land which has a sowed crop upon it, because of the drying action of the crop. The fertilizers which give best results with other orchard fruits may be expected to yield equally good returns with the cherry.

It is an almost universal fault to plant cherry trees too close together. The Montmorency should not be planted closer than 18 feet each way, in orchard blocks, although it is often set as close as twelve feet. The English Morello is a more bushy grower and may, perhaps, be set as close as 16 feet with success: but I believe that even this variety should stand 18 feet apart. The sour cherry orchards in Western New York are yet so young that the evil effects of close planting have not yet been made apparent. I find, however, that nearly every shrewd orchardist who has had experience with these fruits is convinced that the general planting is too close.—*Cornell Bulletin.*

GROWING CAULIFLOWERS

FIRST, it must be borne in mind that while cauliflowers when young are not to be distinguished from cabbage, yet they are much tenderer than cabbage, and a degree of cold that does not affect young cabbage will readily destroy young cauliflowers.

The requirements of successful cauliflower growing are: First, good seed; second, good variety; third, a rich soil in all the essential elements of food. The cauliflower requires more moisture than cabbage. Plants should be made ready for setting out by the time it is safe to put them in the open ground, and the cultivation should be shallow and frequent. A half acre of good land will produce 2,500 heads easily. The Early Snowball is one of the leading varieties, but there are other just as good under other names. To produce the best results the plants should be transplanted at least twice from one frame to another before the final setting out in the open. By this means all defective plants are sure to be rejected, and the crop if grown in well prepared, highly enriched soil, is almost sure to be profitable. —*Vick's Magazine.*

The Home Fruit Garden

IN the rush to plant commercial orchards for profit there is no doubt that too little attention has been given by either nurserymen or lot owners to the planting of gardens for the supply of the family at home. How many waste back yards in our villages, towns, and even cities, that might be utilized to give pleasant employment to the merchant or the lawyer for odd moments of his time, as a rest from the worry of his shop or his office, and at the same time give the best possible profit for the investment of his time and money.

No doubt the absence of literature upon the home fruit garden, showing plans for planting, varieties required to give a succession for the table, method of cultivation and pruning, to a large extent account for the neglect, and it would be a very wise subject for a discussion at a session of the Ontario Fruit Growers' Association. We notice that Corbett in U. S. bulletin, No. 154, gives some good hints along this line, which we quote for our readers, under their several heads, as follows:

PLANTING.

Preparation of Plants.—It is impossible to give explicit directions for the many plants which may be selected for planting in fruit gardens in the various sections, and general statements only can be made. At planting time all broken or decaped roots should be cut away, leaving only smooth-cut surfaces and healthy wood to come in contact with the soil. If a large part of the root area of the plant has been lost in transplanting, the top should be cut back in proportion to the roots remaining. By so doing the demand made by the top when the plant starts into growth can be met by the root.

The holes in which trees, vines, or shrubs are to be set should be ample, so that the roots of the plant may have full spread without bending them out of their natural course. The earth at the bottom of the holes should be loosened a spade depth below the line of excavation. The soil placed immediately in contact with the roots of the newly set plant should be rich top soil, free from sod or partially decayed organic matter. Firm the soil over the roots by trampling, as this brings the soil particles close together and at the same time in close contact with the surface of the roots. A movement of soil water is thus set up and the food supply of the soil brought immediately to the use of the plane. When the operation of transplanting is complete, the plant should stand one or two inches deeper than it stood in the nursery. Every precaution above enumerated will make for the success of the plant and calls for careful attention.

PRUNING.

While pruning has to be modified to suit the style of training employed with any given plant, each species of plant bears its fruit in a peculiar manner, which renders the maintenance of wood of a certain age and character necessary in order to secure a crop of fruit.

In the case of the apple and pear the fruits are borne upon wood of last year's growth only. Heading in or shortening each shoot of the season's growth, therefore, must be done with care in order not to reduce the bearing wood beyond a profitable limit. With these two plants, however, the bearing shoots are not those making the most vigorous growth at the ends of the branches, but they are usually more obscurely located upon the sides of the branches, and make a much smaller growth, for which reason they have been termed "spurs."

With the peach, however, it is the wood of last season's growth upon which the fruits are directly borne, and with them heading in may be successfully employed to limit the quantity of fruit borne by the tree. Japan plums bear on both year-old wood and spurs; pruning may, therefore, be used to thin the fruit, the same as in the case of the peach.

The quince bears its fruit at the extremity of new shoots of the present season's growth, in which respect it differs from both its close relatives, the apple and the pear; but as these shoots arise from wood of the previous season's growth, pruning must be so adjusted that the fruit crop will not be reduced.

The grape bears its fruit on shoots of the season, which in turn usually arise from canes of the previous year's growth. Old wood on the grape is therefore of little value, hence the development of so many systems of training which maintain only a single permanent trunk, from the top of which the bearing canes are renewed each year. The so-called "renewal," "high renewal," "Kniffen," "Munson," and various overhead systems of training all possess this feature in common. In fact, it is the only economical way in which to handle native kinds. For the fruit garden, however, where the vines are desired for covering arbors, pruning must be modified so as to secure a screen from the

FIG. 2784. RASPBERRIES BETWEEN APPLE TREES.

new growth as early in the season as practicable. For this purpose a modification of the "horizontal arm" system of training will be found most advantageous. By planting the vines closely and carrying up single trunks to a fixed height, and from the top of the stalk carrying out horizontal arms along which "spurs" are maintained, a short growth from each spur will be sufficient to give a uniform and sufficiently dense canopy of leaves for the arbor.

Raspberries and Blackberries.—Raspberries and blackberries both bear their fruits on short shoots which arise from canes of the previous growth. While these shoots are usually axillary shoots, the fruits are always terminal. In the case of the grape, which bears its fruit upon annual shoots arising from canes of the previous year, the fruit is produced at a node, and takes the place of a leaf; several fruit clusters may therefore arise from a single shoot of the grape.

Currant and Gooseberry.—In the case of the currant and gooseberry the fruits are produced on both old and new wood; the fruits appear as axillary growths from the shoot itself, and wood three years or more of age is unprofitable and should be cut away.

Strawberries.—Strawberries are rarely produced in profitable quaneities by plants more than one year old. Plants over two years of age should be rooted out to give room for new ones.

DWARFING AND GRAFTING.

In order to secure satisfactory results from a limited area devoted to fruit culture, one must know the form of plant and method of pruning, training, and culture best suited to the space at command.

The fact that trees can be grown as dwarfs as well as standards will enable one to utilize a space which had previously been considered considered unsuited for the development of a tree. The cultivator's art has developed many devices which may be used to make plants conform to the conditions in a fruit garden.

Value of Dwarf Trees.—The modifications which plants undergo are sufficient to convince one of the great possibilities which await those who choose to make use of the methods to secure a large return from a limited area. It is well known that, in proportion to size, dwarf trees are more fruitful than standards; that they come into bearing sooner, and are therefore of special value for use in limited inclosures or fruit gardens.

Dwarfing is accomplished by budding or grafting robust growers on slow-growing stocks, and most fruit trees lend themselves to this treatment. While the dwarf pear is undoubtedly the most familiar example of a dwarf tree, there are stocks upon which apples, cherries, plums and peaches can be grown with the same general result. Besides this mode of modification, there are other methods quite as important to the growers of small areas. Standards may be grown as "bushes" or as "pyramids," thus making it possible to grow them much closer together. Pruning and training, used in combination, have shown the possibilities of restricting plants to the "espalier," "cordon," and other styles of training employed in growing fruits against walls. These methods not only allow plants to be grown more closely than is common in orchard practice, but they allow the grower to take advantage of locations and conditions under which trees could not develop normally. The side of a building may be utilized as a support to an apricoe, nectarine, pear, or grape, the last named being the only one normally adapted to such a position.

Varieties Increased by Grafting.—Besides the advantage of dwarfing, grafting may be turned to good account to enable the owner of few trees to increase his sorts beyond the limits of the trees he possesses. By grafting, the list of varieties can be increased almost at will. There are single trees known which bear as many as 150 varieties of apples. While a tree of this kind possesses little commercial value, it is of interest in the way of proving what can be accomplished by grafting.

COMBINING PLANTS OF VARIOUS HABITS OF GROWTH.

In addition to the advantages to be gained from restricting the growth of plants by training and dwarfing, some of the methods of training offer adaptations which allow of combining plants of various habits of growth, to the advantage of the grower and with little or no disadvantage to the plants. To illustrate this, currants may be combined with the grape, the apples with currants or raspberries, as in Fig. 2784; grapes and strawberries, as shown in Fig. 2785.

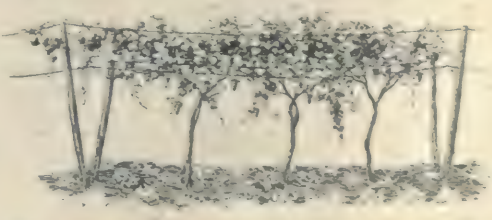


FIG. 2785. STRAWBERRIES UNDER GRAPEVINES.

The advantages of these methods become apparent at once when the object is the most economical utilization of a limited land area.

Besides the special adaptations afforded by dwarfed trees and by special combinations of low-growing and high-growing plants, certain well known systems of pruning and training allow additional liberties to the skillful planter, as, for instance, the grapevine, which readily lends itself to arbor training, may be utilized for screening tender or shade-loving plants. The style of training the grape shown in Fig. 2785 is more desirable in many cases than a more perfect orbor. Strawberries adapt themselves readily to such situations if the shade is not allowed to become too dense. Among flowering plants none will thrive better under such conditions than pansies and violets, and among garden vegetables lettuce and radishes may be successfully grown under such a canopy, as they will be out of the way before a dense shade is formed by the grapes. Asparagus can be successfully grown under a shade of this character, as it will, because of its early habit, make a large share of its growth before the eardy grape will have produced a shade dense enough to interfere with the young, tender shoots.

Vines as a Cover for Walks and for Shade.—The vine may be utilized as a cover for walks and drives or as a canopy over small outbuildings. A cozy summer veranda may be covered by grapevines, thus securing the double advantage of a cool, shady nook during summer and a supply of fruit in autumn. In one garden a small ash house was made to support an Isabella vine, and this vine in 1891 produced 300 clusters of grapes. The small inclosure in which this vine grew, only 25 feet wide and 80 feet deep, also supplied foot room for 15 other grape vines, several dozen strawberry plants, a row of currants, and a limited supply of vegetables and annual flowers, besides a few square yards of beautiful turf. The plan of this garden shows the arrangement of the plants. The grape vines are trained to the high tight board fence which separates the lot from that of the next neighbor. The currants are planted near one side of the inclosure, while the main walk occupies a corresponding position on the opposite side. The area between the walk and fence on one side is given up to strawberries, while that between the walk and currant bushes on the opposite side forms the flower and vegetable plot.

COMBINED FRUIT AND VEGETABLE GARDEN.

Where there is more land at one's disposal there may be both a fruit garden and a vegetable garden. An area of 60 by 80 feet set apart as a fruit garden will accommodate 442 fruit-bearing plants of the kinds designated below, while an area of 40 by 80 feet will be sufficient for quite a variety of vegetable plants.

As before mentioned, the general plan will serve as a guide to planting, but the sorts chosen must be suited to that particular section of the country in which the work is to be executed.

As will be seen in Fig. 2786, this garden is planned to utilize the space to the best possible advantage. In order to secure large returns, the soil must be kept cultivated and well enriched; walks, if any, are to be maintained as permanent features, should only exist where necessary for ease and comfort in getting about. A permanent walk should divide the fruit garden from the vegetable garden. This is best made of gravel or some other loose material, which will preserve a dry passageway without preventing the rain from penetrating the soil beneath it, as the fruit trees which stand beside it will need the moisture which it gathers. On account of the small area occupied and the

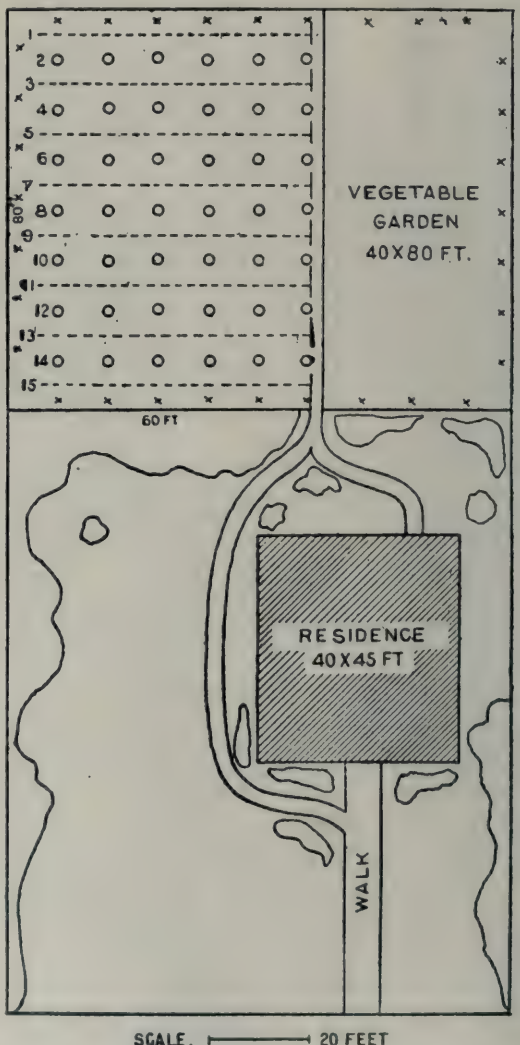


FIG. 2786. PLAN FOR A SUBURBAN PLACE.

close planting necessary to secure the result desired, the culture of such a garden must of necessity be done by hand. If the grape vines are trained on the Kniffen high renewal system they will serve both as a screen for the rest of the garden, and as a source of fruit supply. A good wire fence should, however, be constructed on the line between adjoining properties, and the grape border planted not farther than two feet from the boundary fence.

ON A NEWLY-PROPOSED METHOD OF PREPARING THE LIME-SULPHUR WASH

BY FRANK T. SHUTT, M.A , F.I.G., F.R.S.C., CHEMIST, DOMINION EXPERIMENTAL FARM.

IN the report of the division of chemistry in the experimental farms for 1902, the results of a series of experiments in the preparation by boiling of this valuable spray are given. Since the appearance of that report a method has been proposed by the New York Geneva Experiment Station, which obviates the necessity of boiling—the chief drawback to the more common use of this valuable remedy. The modification consists in the addition, at a certain stage in the preparation, of strong lye, such as Babbitt's or Gillett's. The proportions and preparation as given in Bulletin No. 228 of the above named experiment station are as follows:

Lime, unslaked, 40 lbs.

Sulphur, ground, 20 lbs.

Lye, concentrated, 5 to 10 lbs.

Water, 60 gallons.

"In the preparation of the mixture the lime was slaked, preferably with hot water, and while it is slaking vigorously, the sulphur, which had been made into a thin paste, was added and thoroughly mixed with the slaking lime. The caustic soda is then added, with water as needed, and the whole stirred thoroughly. As soon as the chemical action has ceased the required amount of water, preferably hot water, is added, and the mixture is ready for use."

It will be noticed that in this process there is no boiling and no salt, an ingredient in the old formula which apparently had no direct value as an insecticide, but was useful in raising the boiling point of the mixture, thus ensuring a more complete union of the sulphur and lime.

At the request of the entomologist (Dr. Fletcher) we made several trial preparations in the laboratory and found that the proposed method is quite workable and simple and yields a product in which there is very little uncombined sulphur. This latter is an essential point, as undoubtedly it is the sulphur compounds that give this wash its great value for destroying the scale. It is necessary to this end that the sulphur be added (in a thin paste) while the lime is still actively slaking—for which purpose care should be taken to use only a sufficiency of water—and the mass stirred vigorously. As soon as the sulphur paste is poured on to the slaked lime add the solution of lye, with such further quantities of water as may be necessary, stirring and mixing, until all bubbling ceases. There is now an orange-yellow, pasty, homogeneous mass which can be diluted to the requisite volume either at once or at any subsequent time, if kept out of contact with the air.

As far as one can judge from what might be called the chemical or physical point of view, this wash should prove equally effective with that prepared by boiling.

DUST SPRAYING

IN the Western States, particularly in the State of Missouri, where orchards are often on steep hillsides, and where water is sometimes scarce, fruit growers have been looking about for some easier way of applying fungicides and insecticides than by means of water, which is difficult to get and more difficult to draw over the rough ground. Trees have been dusted with sulphur and other materials in the east in the past, but copper sulphate had not been used in this way until tried in the west. Machines for spraying dust mixtures have been invented or old ones improved upon, and during the past few years dust spraying has been carried on in a number of commercial orchards in the Western States and quite satisfactory results are said to have been obtained.

Air-slaked lime has been used in the place of water for carrying the fungicides and insecticides, but it in itself has a beneficial effect also. The formula recommended up to the present year were not entirely satisfactory, as they did not contain the copper in the same chemical condition as in Bordeaux mixture. Experiments were concommended which is said to have the copper in the right chemical condition. The formula, with the method of preparation, is given in Bulletin No. 60, Missouri Experiment Station, Columbia, Mo.

A dust machine was obtained from the Ozark Dust Sprayer Co., Springfield, Mo., and tested at the Central Experimental Farm, Ottawa, in 1903, by the writer. It was found to distribute the dust satisfactorily, but in order to get the dust to adhere it must be applied when the dew is on the foliage. This is a serious drawback to dust spraying in this time of scarcity of labor. Moreover, the liquid spray gives such satisfactory results when properly made and applied that the dust spray is not likely to take its place, except perhaps where the ground is rough and where the orchards are on steep hillsides, and possibly in spraying young trees. It would appear at first that there was great danger from the use of arsenical poisons when applied in a dust spray, but while there is undoubtedly danger if the dust is inhaled, the nozzle is so far away from the operator that there is really little danger if the work is carefully done.

As there was no apple spot fungus this year, and practically no codling moth, accurate comparison could not be made between the effectiveness of the dust and liquid sprays, but the general conclusions reached by experimenters elsewhere are that although good results may sometimes be obtained by dust spraying, it is not the best method for general use.

W. T. MACOUN,
Horticulturist Central Expl. Farm, Ottawa.

HEIGHT OF FRUIT TREES

THERE is considerable difference of opinion among orchardists as to the height at which fruit trees should be headed. In the Eastern States there are many who think the trunks should be four or five feet, and some of the apple orchards have bodies taller than this. However well this may be for the eastern conditions, it is not the proper way to train trees anywhere in the Central and Western States, and in the east the tendency is to lower heads. The more recently planted apple orchards are rarely over two to three feet to the lower branches, and the pear orchards from one to two feet.

Any one who has had experience in the west knows that the hot suns and almost constant summer winds work havoc in orchards that are headed high. The flat-headed apple tree borer works in the trunk and large branches that are exposed to the sun. I have seen apple trees in Northern Texas that were badly attacked by this insect almost ten feet from the ground. In Kansas and Missouri it is not so abundant and destructive, but nearly all the apple trees with tall bare trunks have borers on them.

Tall heads give the wind greater power over the roots, which strains them unduly, often causing the trees to incline to the northeast or fall to the ground. The fruit is much harder to gather from tall headed trees than from those with low heads. It is especially important that peach trees should be headed low and then kept pruned back, so that ladders will rarely be needed to be used in gathering the peaches.

Spraying is much more easily done on low-headed trees, and the same is true of pruning. There does not seem to be any good reason for heading fruit trees high, except that they are troublesome to cultivate when the branches are very low to the ground. This can be largely overcome by using tools that are made to meet these requirements.—*Midland Farmer.*

A LIVING FROM A TOWN LOT

THE TOTAL RECEIPTS FROM THREE-QUARTERS OF AN ACRE WERE $1400.

IN a small western town, some years ago, there lived a man who thought that horticulture could be made profitable on a small amount of ground. This man's capital was limited. The total area of land at his disposal was a little less than one acre. He had energy and ambition and a desire to make his efforts successful. The man selected as his two main crops strawberries and celery. One-fourth of an acre was devoted to strawberries, one-fourth of an acre to celery, and one-fourth of an acre to miscellaneous garden vegetables, to be sold in the town. The problem was to handle these crops as to secure the very highest returns for the outlay involved. No other help than that of the man himself was needed. The soil was ordinary, but was made rich by the application of stable manure.

The man developed a system which involved a shifting of crops each year. This, he gathered from what he could read, was necessary, first to avoid diseases and insects, and second, to rest the land. Eight thousand strawberry plants were put out on one-quarter of the acre, the plants all being grown in small pots so that they could be planted in the latter part of June, leaving his ground free up to that time for his miscellaneous vegetable crops.

The strawberries planted in June gave him a full harvest the following May and June, and from these plants the average yield amounted to $500 for his one-quarter of an acre. His celery he planted in the latter part of July on the ground that his strawberries had occupied. This celery was taken off in October, and the ground was therefore free the next spring for his vegetable crops. His one-fourth of an acre of celery handled in this way gave him $400 average yield. His miscellaneous vegetables, grown in rotation, such as green peas, green beans, beets, lettuce, and crops of this nature, gave him $400 more, making his receipts from his three-quarters of an acre $1,400, of which approximately $40 was expended for fertilizers, necessary help, etc.—*The World's Work.*

THE STRAWBERRY PLANTATION

Most Productive Varieties of Strawberries.

BY W. T. MACOUN, HORTICULUTRIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

THE strawberry is, undoubtedly, the most popular fruit in Canada. It is also one of the most, if not the most, profitable fruits to grow. There is, however, a great difference in the productiveness, firmness, appearance and quality of different varieties, and the profits in growing this fruit will depend largely upon the kinds grown. At the Central Experimental Farm nearly 400 named varieties have been tested during the past sixteen years, and a large number of unnamed seedlings. This long and wide experience with varieties makes it possible to recommend certain kinds which have proven superior to others. After having discarded a large number of varieties, a three years' test was made with 110 kinds. Taking the average for the three years, the most productive variety, the Mele, yielded at the rate of 12,709 lbs. per acre, and the variety 25th on the list, Arkansas Traveller, yielded at the rate of 7,629 lbs. to the acre, a difference of 5,080 lbs. per acre between the best and the poorest of 25 varieties. It can readily be seen how important it is to plant productive varieties, providing the fruit it salable. Among the best varieties, both as regards productiveness and other points of merit, are: Buster, Glen Mary, Sample, Warfield, Greenville, Bisel, Marie, Bederwood, Lovett, Barton's Eclipse, Bubach, Daisy, Afton, Williams, Thompson's Late, Enhance, Stevens' Early, Howard's No. 41, and Mele, the last named variety having proved the most productive of all. It is, however, a little under size and rather soft. Further information regarding these varieties will be found in the reports of the Horticulturist Central Experimental Farm

To Be Successful in Strawberry Growing.

TO be successful in growing strawberries, a rich soil must be available, and clean, thorough culture given during the entire growth of the plants. Strawberries require a great deal of moisture, especially during the fruiting season, and this can be conserved somewhat by mulching between the rows or by keeping the soil constantly loose on top. If irrigation is practicable, this can be used with much profit. Of course there are a great many varieties of strawberries, but there are only a few which I have tested that are really adapted to southern Ohio. One variety may do remarkably well in a certain section and be almost worthless in another. For home and table use and near markets I find the Cumberland, Haverland, Crescent, Bubach, Ivanhoe and Allen's Seedling very profitable. They are vigorous growers and hardy. The yield is large and the fruit uniform. I think the Cumberland is probably the best for home use, but for shipping is not so desirable.

When setting the plants in spring, prepare the bed thoroughly, see that the soil is rich and as free as possible from noxious weeds and grass seeds. During the season I pick out and mark the best plants and use these for setting other fields the next year. In this way the choicest plants can be secured. I have always had the best success in setting as early in spring as the ground can be worked. As soon as growth begins the strawberry fields should be thoroughly cultivated, and this should be continued until the first of September. The weeds and grass much be gotten rid of as soon as they make their appearance.—*Am. Agriculturist.*

GENERAL GARDEN NOTES FOR APRIL

BY WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

VEGETABLE AND FRUIT GARDEN.

THE first opening operation in the vegetable garden should be to attend to the asparagus bed. No garden, however small, where any vegetables at all are grown, should be without a small plot, or a row or two of asparagus plant. It is the earliest, best, and most wholesome and acceptable of all early vegetables. If you have no asparagus in your vegetable garden, sow some seed as early as the ground can be worked in drills an inch deep and three feet apart. Two year old plants planted eight inches apart in the same width of rows as before mentioned gives quicker results than by sowing seed. Make the asparagus bed on the deepest, richest, best piece of land you have, where the water does not stand in winter or early spring. If you have an asparagus bed take off the covering of manure it should have received in the fall, and fork the soil over lightly around and about the plants. Do this as soon as frost is out of the ground and the ground fit to work.

The first crops to sow or plant in the garden are peas, spinach, lettuce, parsnips, parsley, leeks and onions. A little snow or frost after the seed of these is in the ground will not hurt them.

Beans, beet-root, salsify and carrot seed should be sown a week or two later, whilst vegetable marrow, squash, melon, corn and cucumber seed should not be sown out in the open until about the third week in May, or later if the weather is cold. Never sow seeds when the ground is wet and soddened.

Parsnip and parsley seed particularly are slow in germinating, often taking four or five weeks before growth commences.

All small fruit pruning should be finished up early in April, or before if possible, especially gooseberry bushes, as they break into bud early. Grape vines should also be pruned early, March usually being the best month for the operation.

If the strawberry patch was mulched in the autumn the mulch should be taken off about the second or third week in April. Fork the ground over lightly around the plants just as the bloom buds are showing. Leaving the forking over until this date is preferable oftentimes to doing it earlier, as summer weed seeds that germinate about this time are easier destroyed than by hoe-

ing or cultivating. Dig out and remove all perennial weeds, such as dandelion, twitch or spear grass, etc., when the bed is forked over.

FLOWER GARDEN.

All bush and climbing roses should be finished pruning before the leaf buds are developed too far. Fork the soil over around the bushes as soon as the ground is dry enough.

SEEDS.—Sow sweet pea seed as early as possible for early flowers. Sow for later flowering the second or third week in May if required, but early sowing gives the best results. Mignonette seed should be sown as soon as the soil is dry enough to work nicely. Sow Annual Wallflower seed early. This is one of the best late autumn flowering annuals we have. Antirrhinum or Snap Dragon seed should also be sown early to secure early flowers. Aster, Stock, Zinnia, Phlox Drummondii, Scabiosa, Candytuft, Sweet Allysum, Gaillardia, Dianthus, Marigold, Calliopsis seed, etc., can be sown about the first or second week in May usually, except perhaps in the more northerly parts of the province, where later sowing may be better. Nasturtium seed should not be sown too early, not until nearly the end of May, as these are more tender than many annuals, and the young plants are liable to be damaged by late frosts if out of the ground too early.

PERENNIALS.—Peonies, Dielytra and German Iris should be planted or transplanted as early as possible in the spring. I prefer early fall planting for these plants rather than spring planting, as they are early flowering perennials.

Perennial Phlox, Gaillardia, Coreopsis, Campanula, and later flowering perennials can be transplanted or divided any time during May. A good general rule is to commence planting about a week after the plants show the first signs of growth. Plant when the ground is fairly moist, but not when it is wet and sticky, especially if the ground is of a stiff clayey nature.

THE CINERARIA

BY WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THERE are about nine or ten species of the cineraria known to floriculturists, most of them being classed as greenhouse perennials. The varieties represented in the accompanying cuts are known commercially as Cineraria hybrida grandiflora and Cineraria stellata (starlike). Both of these are improved types of Cineraria cruenta (purple leaved), a variety introduced from the Canary Islands into England about the year 1777.

The large flowering type C. hybrida grandiflora affords a striking illustration of what can be effected in the improvement and development of plant life by a careful selection of the best types from which to save seed, as well as by a judicious selection of plants for cross-fertilization purposes. The flowers of the original type (C. cruenta) were of a reddish purple color only, and about an inch in diameter, whilst now from a packet of seeds of the improved type, flowers upwards of three inches in diameter are quite common, varying in many shades of color from pure white to deep red, purple or blue, a large percentage of the plants also having flowers with a disc or centre of pure white, varying in size from the smallest spot, until in some flowers the markins of the petals only are tinged with hues of the more decided colors.

In the collection as seen recently in the intermediate greenhouse at the college, many of the flowers were close on four

FIG. 2787. CINERARIAS AT THE O. A. C., GUELPH.

inches in diameter. It is perhaps questionable whether these abnormally large flowers are to be preferred to the more moderate sized flowers, as oftentimes—more especially with chrysanthemums—other good points such as beauty of form, habit of growth, and robustness of constitution are often lost sight of in the endeavor to secure flowers of enormous size.

The variety C. stellata is of a tall branching habit, and in many respects resembles the original type C. cruenta, with the exception that the flowers of C. stellata are often seen in various shades of color ranging from creamy white to pink, red and blue.

The flowers of C. stellata keep fresh much longer when cut than do those of C. hybrida grandiflora, a point that will enhance its value as a florists flower. The flowers of C. stellata are usually self-colored (one color), and are only about an inch in diameter. (The plants of C. stellata can be seen in the background of the accompanying cut, in the centre row of plants.)

There is no winter or early spring flowering plant that will give such a gorgeous and varied display of blossom as the Cineraria if the plants are well grown. Greenhouse Cinerarias are grown from seed usually, and treated as annuals. Seed sown in June, July or August will produce plants that will flower from Christmas until April or May. A cool temperature, about 50 degrees at night to 65 degrees in the daytime will suit them very well. A moist atmosphere and plenty of water at the roots are also desirable. Frequent syringing of the foliage whilst the plants are growing is necessary. Partial shade must be given the plants during hot sunny weather.

The green aphis and red spider are the worst insect pests that attack the Cineraria. Tobacco smoke or tobacco water will kill the aphis. Copious syringing with water and a moist atmosphere are the best preventives of red spider. Thrip sometimes attacks Cinerarias. Dipping the foliage in strong tobacco water is the best remedy for thrip. Cinerarias cannot be grown very successfully as window plants.

THE FERN DISH

FIG. 2788. THE FERN DISH.

THE fern dish is the finishing touch of elegance to the simplest table. Have you not many times admired the center piece (upon some luncheon table) consisting of a fern dish set in a silver filagree jardiniere and wished with all your heart you could afford such a dainty accessory to your own table? Indeed, yes. But the prohibitive price asked at a florist's has made many of us resign all idea of possessing one. It isn't really the silver which attracts our attention. There may be many other silver articles on the board. It is the green things growing, airily, bewitchingly before us, and while the silver may set off the green tracery of leaf and stem, yet other material could be used to decorate the plainness of the dish.

So I set to work. I bought a fern dish, simply a flower pot, broad and shallow. To the woods I went, bringing home leaf mold, and a root of Maidenhair fern, called Crow's foot. It has five fingers on its black stems. The mold had a handful of sand mixed with it and the fern was tucked carefully in the dish. That was the beginning. I then rooted a flowering begonia, Argentea guttata, and put that in the dish. The object in a fern dish is to have small plants. When they grow large the fern dish can not be used for a center piece. Beside the begonia went a cyclamen bulb, raised from seed, and then a couple of other wood ferns, the coffee fern, and the gold back, both small delicate ferns, native in California. This was my first dish, but I learned the art of making them up differently. Suppose you are using eastern ferns which rest during the winter. Do not put in flowering begonias, but use gloxinias, achimenes, cyclamen, or tuberous begonias, as these all rest during the winter. When the dish is in full greenery and you desire to use it on the table, decorate it with tissue paper, or silk, the color of your table decorations, and no one will notice the absence of silver filagree. Do not use reds or blues, but soft greens or creams, or pale pinks or yellows, which will harmonize with the greenery and not antagonize.

As the principal object of a fern dish is ferns, I will name some pretty ones. There is the Davidiana, which in time grows large, but while small is very pretty in a fern dish. The maidenhairs one and all belong to the fern dish, in fact, I think the fern dish was "invented" especially to set off the maidenhairs. In California we have the gold back, a maidenhair with the black stems and a glittering back which looks as though dusted with gold; the coffee fern, small round leaves like coffee beans, both remaining evergreen the year round, if kept watered. The Pteris variegata has leaves margined with white, and is ever green, and Nephrolepis Duffli is a very dainty small leaved fern, nice for the fern dish.

In making up fern dishes I aim to use

plants with delicate foliage, a bulb or two for flowers, and ferns. The artillery plant is especially pretty in a fern dish, as is also the plumosus asparagus. When they grow a little too large they can be cut back or removed. Begonia multiflora is also a pretty plant on account of its many small leaves. Whenever a fern dish grows ragged looking, remake it. One can have two or three in various states of development, so that one perfect one is always on hand. If I lived east I should have a dish of native ferns and lilies of the valley put away in a cold cellar where it could freeze up until February and then bring it into the warm rooms. And I would have one of maidenhair and sweet violets for early spring. One can get more delight out of a fern dish than from a whole conservatory of big plants. There is something so interesting in the slowly uncurling fern fronds, it fascinates a plant lover.—*Vick's Magazine.*

PANSY GROWING

Sir: Would you kindly give me a few hints on raising pansies, the kind of soil they require and treatment they should receive from time seed is planted.

To secure the best results with pansies the seed should be sown about the second or third week in August, and the plants wintered over in a cold frame. At this date, however (March 3rd), it would be better to sow the seed in a pot or shallow box in the window, or in a moderately warm hot-bed. The plants should be hardened off by placing them in a cold frame or some sheltered position out of doors before being planted out in the border. As pansies are of a comparatively hardy nature, they can be planted outside, usually early in May. Pansy seed can also be sown in the open ground as soon as the ground can be worked, but these do not come into flower oftentimes until hot weather commences, and pansies do not succeed well in hot weather unless under specially favored circumstances.

Pansies like a light rich soil, with plenty of moisture, that is why they succeed best as spring or early summer flowering plants. Pansies planted out for late spring or early summer flowering would be benefitted very much by being planted in a position where they were at least partially shaded from the sun for a few hours at noon day. Light rich soil, plenty of moisture, and a temperature varying from 50 at night to 65 or 70 degres in the daytime suits pansies splendidly. A burning hot sun soon ruins them. A little shade suits them.

W. HUNT, O. A. C., Guelph.

FARMING AND HORTICULTURE

THE farmer is satisfied if his cereal crop yields him a profit of $15 or $20 an acre. The horticulturist—and I mean by this term the man who grows fruits or vegetables outdoors—must get from $50 to $500 per acre; and to do this must be able to make use of every possible fact which science and practice have shown to be of value.—*The World's Work.*

Civic and Rural Improvement

PLAN TO CARRY OFF HOUSE WASTES

BY MISS BESSIE LIVINGSTONE, OTTAWA.

EVERY housekeeper knows that there are many wastes going in in every department of the house. I shall endeavor to outline some methods of disposing of household wastes. Every housekeeper in the country is confronted with the difficult problem of dealing with this subject. In the towns and cities some co-operative system is arranged, and the town householder has very little to do with the disposal of a great deal of the refuse, except what really occurs in the cooking and preparation of foods, and the ordinary accumulation of dirt. In the country the question of disposing of refuse must be dealt with individually. Many cases of illness in the country are due to neglect and carelessness regarding sanitary matters surrounding the farm and farm home. I might also speak of the unattractiveness of the farm home, where there is much refuse left lying around.

In suggesting the topic of "Disposing of Household Wastes" to Mr. Creelman, it was with special reference to the disposal of household waste in the country. In the towns and cities a co-operative system is acted upon, according to a consensus of public opinion, and, though municipal housekeeping is far from perfect, and the best systems are criticised by sanitary experts, yet, as I said, the system is fairly satisfactory, and the occurrence of sickness or epidemics usually causes the health boards to look carefully into the cause of the outbreak, and the laws are periodically enforced with vigor. The principles underlying methods of keeping the surroundings sanitary and attractive in the country are essentially the same, only the conditions vary. In the country each one must attend to these matters for himself.

Usually a wide area of distribution, outside occupation, a more plentiful supply of fresh air, purer food, will prevent illness, even where faulty systems of disposal are in evidence. Very often you will hear people accept with resignation an illness or death, as a dispensation of providence, when it really means that the accident is due to drinking impure water, inhaling vitiated air, or from some unsanitary condition.

This question of clean soil, pure air and water, and the speedy and complete removal of the waste of daily life in the house and street should be intelligently understood by every householder and every housewife. It is a question of vital importance in relation to public health and the health of the individual.

The household wastes to be disposed of consist of vegetable refuse, such as parings of vegetables and fruits, and decayed vegetables and fruits, bones and scraps returned from the table, dust and ashes, old rags and papers, broken dishes, china and glassware, old tinware, dishwater and soapsuds, closet and bathroom sewage. Some convenient receptacle for all such materials as may be used as food for animals should be provided, and for the disposal of this class of waste we need only say, that the more frequently it is disposed of the better.

The garbage receptacle should be emptied at least twice daily. It should be kept covered and thoroughly cleansed every day.

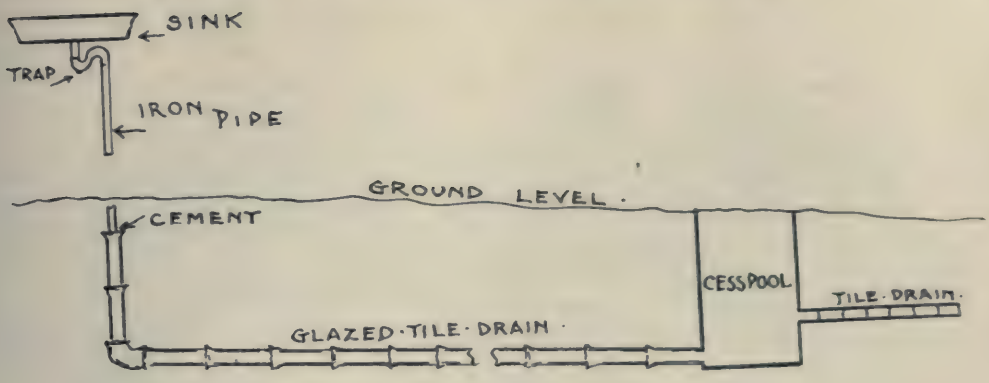


FIG. 2789. APPROVED PLAN OF KITCHEN DRAINAGE SYSTEM.

There is nothing more unsightly and unwholesome than a garbage pail, gathering flies in the heat of the day, and poisoning the air with its foul odors. For convenience it is often placed beside the wall at the back door, and part of the refuse frequently adorns the pathway. It is a menace to health, because its vitiated odors often pass into the house and cellar.

Bones, which are rich in phosphates, may be utliized as a fertilizer by embedding them in ashes, or they may be ground and fed to poultry.

Dust from the house is best and most safely disposed of by burning, as it is probably rich in bacteria.

Ashes possess a high fertilizing value, owing to the large percentage of potash contained in them. They should be kept dry, to prevent leaching, and applied to the soil.

Old rags, shoes, paper, etc., may be cremated, thus removing any danger from contamination, and preventing an untidy appearance.

Broken china, old tinware and such materials as cannot be burned or otherwise utliized, are possibly best disposed of by burying, or they may be used for filling up hollows, making road beds, or for sub-soil drainage. I saw an excellent path made of such materials.

The sanitary and economic disposal of all solid and liquid sewage, such as dishwater, soapsuds, chamber and closet sewage, is the most difficult problem confronting the rural householder. The vital point to be remembered is that the sewage must be disposal of —utilized, if possible—and this must be done without endangering the water supply.

Some fairly satisfactory plumbing systems have been introduced into farm homes, but such cases are isolated, compared with the many rural homes, where the old-time methods of disposal still prevail. In many cases the soil around the kitchen door contains the accumulated pollution of years, resulting from throwing waste water and refuse from the kitchen, both in winter and summer.

It is not the purpose of this paper to specify details as to the construction of a drainage and plumbing system, but to convey a few ideas, emphasizing the importance of giving the matter strict attention. Each man must, to a certain extent, adopt a system suited to his particular need, with special reference to the porosity of the soil and lay of the land.

In a general way, it seems to me safer to suggest the separate disposal of liquid and solid sewage. The liquid sewage is a very valuable fertilizing material, and is easily converted into plant food. The solid matter, though not possessing such high fertilizing value, should be carefully collected and applied to the soil. It is well known that

the surface soil of the earth exerts an active, purifying power upon these offensive wastes, converting them into harmless substances and at the same time increasing the fertility of the soil. This excreta is better placed below the surface. It is interesting to note how in so ancient a document as the Pentateuch (Deut. xxiii, 13) it was especially enjoined upon the Israelites that excrements should not be allowed to lie upon the soil, but should be covered with earth. In a general way, the best way to dispose of solid excrement of closets is by the dry earth system. It is a method still practised in several populous cities of Europe, and is a very safe one. The material is collected by the pail or box system; immediately covered by some absorbent material and transferred to the soil. The absorbent material used for this purpose is: ashes, dry, finely divided particles of earth, peat, moss, etc. In disposing of waste of this kind, be sure that it is not placed near the well.

The liquid sewage may be disposed of by a system of sub-soil irrigation. This may be effectively carried out by having a receptacle placed some distance from and connected with the house by means of a trapped tank.

Almost any one of us can cast our mind's eye at this moment upon the external appearance of many farm houses, whose unattractive, untidy surroundings are a menace to health, and an offence to the eye. In some places wastes are removed but once a year, this being thought sufficient, instead of clearing away all wastes as soon as produced. Let us do all that lies in our power to make the farm home healthful and beautiful.

SENSITIVE HORSES

The horse does not like a nervous, fidgetty, fussy or irritable man. He is too nervous and irritable himself, says *Country Life in America*. "Why is it," one teamster was heard to ask another, "that Phin's horses are always gaunt? Phin feeds well." "Yes," was the reply; "but he's like a wasp around a horse." A well-known owner of race horses, not at all a sentimental person, recently made an order forbidding his employes to talk in loud tones or to swear in the stable. "I have never yet seen a good-mannered horse," he says, "that was being sworn at all the time. It hurts the feelings of a sensitive horse, and I'll keep my word good to discharge any man in my employ if I catch him swearing within the hearing of any horse in this stable."

USE OF FRUIT

WE do not use enough fruit. We do not realize how very healthful it is. Our tables should never be without it in some form, and it should take the place of meat almost entirely during the heated months of summer. We should eat it between meals—not munch on it, but lunch on it—when we are working long hours. When the stomach gets empty we must draw upon our reserve force, and that burns the tissues. A light lunch of fruit will prevent this, and gives us also a few moments recreation and we return to our tasks with renewed energy.

The Canadian Horticulturist

COPY for Journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 per month. Copy received up to 20th.

LOCAL NEWS—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS—The Editor will thanktully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; bur he cannot be responsible for loss or injury.

NEWSPAPERS—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES—Remember that the publisher must be notified by letter or post card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers' Association Department of Agriculture, Toronto, to whom all **POST OFFICE ORDERS,** cheques, postal notes, etc , should be made payable.

Credit is due "The Fruit Grower," London, England, for the temperature clock and formulae, given on page 58.

Mr. T. H. Race says the announcement of his appointment as Dominion Superintendent of Fruit at St. Louis was not duly authorized.

HORTICULTURAL SOCIETY AT ORILLIA.

Annual Meeting and Election of Officers.

The first attempt to hold the annual meeting of the Horticultural Society having proved unsuccessful, owing to bad weather, the Hon. the Minister of Agriculture was requested to name another date, as required by the act, and set Wednesday, March 2nd. The meeting was accordingly held on that date. The annual report submitted by the directors was as follows :

"Your officers and directors beg to report that the past year has been one of average success in the work of the society. As will be seen from the treasurer's statement the finances of the society are somewhat better than they have been, as there is a small balance of $22.08 in cash on hand, with outstanding liabilities amounting to some $2 or $3 more than this. The entries at the exhibition of the society last fall were slightly over those of the preceding year, which was a remarkable good showing in view of the very unfavorable weather during the days of the show, very many of the large exhibitors of other years not being able to gather their fruit for exhibition owing to the continuous rain for two or three days before the show. The quality of the exhibits was fully up to the mark, and on the whole the show was a success considering the adverse circumstances. A demonstration of apple packing was given by Mr. McNeill, of the Fruit Department at Ottawa, and much interest was taken in his explanations of the best methods of handling the fruit. In May last an open meeting was held at the residence of Mrs. McCosh, when Mr. T. H. Race, of Mitchell, delivered an address on 'Local Improvements.' This meeting was not so largely attended as had been hoped and expected, but a gratifying interest in the subject and in the work of the society generally was shown by those who were present."

The treasurer's report showed receipts as follows : Legislative grant, $65 ; municipal grant, $25 ; members' subscriptions, $66.45 ; prize moneys retained for membership for 1904, $31.25 ; grant from Agricultural Society towards expenses of exhibition, $35. Total, $222.70. The expenditures were : Prize money, $139 ; meetings, $3 ; subscriptions to Horticulturist, $24 ; working expenses, $29.50 Total, $200.62.

It was also decided that in future exhibitions no more than one entry be made in any section unless the second and other entries be distinct named varieties.

At a meeting of the directors, held immediately after the annual meeting, Mr. T. W. Robbins was appointed secretary-treasurer at a salary of $25.

THE CARNATION SHOW.

The Toronto Electoral District Society, the Toronto Gardeners' and Florists' Association and the Toronto Horticultural Society recently held their annual joint carnation show at St. George's Hall, when a goodly show of exhibits from Ontario districts, as well as from Joliet, Buffalo and Lafayette, were displayed. Several new varieties of roses were submitted to the public, namely, the La Detroit, the General McArthur, beautiful hybrids of the light pink variety, the latest importation from the United States. The central piece of the Canadian exhibits was undoubtedly the beautiful Fiancee vase, which won the Lawson gold medal at Detroit at the last exhibition.

FRUIT GROWERS AND CO-OPERATION.

Addressing the Nova Scotia Fruit Growers' Association at Bridgewater, Mr. W. A. MacKinnon, Chief of the Fruit Division, Ottawa, spoke as follows :

"This is the most important subject before the fruit growers of Canada to-day. Individuals can accomplish very little if they work entirely alone. All the fruit growers' societies and associations should co-operate and pull together. Look at the work of the manufacturer's association. Whenever they speak, they speak as one man, and they are getting what they ask to a great extent. That is why I suggest that fruit growers should take a lesson from them, and that all local jealousies should be put aside, for they are worse than fungous diseases.

"These are the objects which I think should be obtained by co-operation. First of all, growers who are beginning to plant in a new district might co-operate to secure information and purchase the best varieties of trees for that district at the lowest price. Seven or eight varieties are plenty for any district, and each man would probably want three or four of these. Then these growers might get together and agree to adopt uniform methods of culture, pruning, spraying, which would result in an entire uniform quality of fruit. Growers within a radius of five miles with a total of, say, 4,000 trees, could co-operate to secure effective and systematic spraying by means of power outfits.

"Another advantage of co-operation is in securing cheap and reliable supplies, such as implements, chemicals for spraying, and packages for shipping fruit. The man who wants only 200 barrels must pay a higher price for them than if he were buying all the barrels required in the district. By putting up packing houses at proper centres it will be possible to secure uniform grading and packing by experts, who will pack the fruit like machines and turn out an even grade all through. A great deal of the success of the California fruit is due to this system, and we heard at the Ontario Fruit Growers' Association how Ohio growers had prospered under the co-operative method of packing and marketing peaches. Large quantities of one grade of fruit are packed in exactly similar packages, and purchasers know that they can get as many as they want of that particular kind in one place. This facilitates sales and enables the growers to avoid glutted markets, for even with apples there is a time when it is well to ship and a time when it is not well to ship. With the best of orchard management there will always be some culls, which might be disposed of economically if a number of farmers owned a co-operative evaporator.

"Advertising can be done much more effectively by co-operation. For instance, if you had a Bridgewater Co-operative Association, the buyers who attended your sales would be able to depend upon the fruit and would buy without hesitation. You cannot overestimate the value of advertising such as that. You would also have more influence with transportation companies to get fair rates, reasonable care and better cars. Bear in mind that the transportation companies are groups of stockholders who want dividends, but do not forget that you want dividends too. You must bring pressure to bear upon the managers of these companies and upon the Railway Commission to secure the removal of real grievances.

"I should like to see the county vice-presidents throughout this province consider and report upon the feasibility of co-operative associations in each county. At Walkerton, Ontario, there is a co-operative association that began with a small number of members. Now they have more applications for membership than they are willing to grant. With such a powerful organization they can say to a negligent member : 'You do not cultivate your orchard ; you are sending in sixty per cent. of No. 2 apples. We cannot allow this, and will refuse to accept your fruit unless you cultivate and spray properly.' When an association attains to that point it can insist on up-to-date methods throughout the district. That is what I hope to see established everywhere in Canada.

THE TOWNSHIP FAIR.

The Hon. Mr. Dryden, who presided at the evening session of the convention of the Fair Association, advised forming the township shows into one good show in each county. While many good reasons might be advanced for one county in preference to a number of inferior township shows, we do not think the time has come when the township show should be given up. Many of them are doing excellent work, and give a good reason for their existence. A well managed township show, with the educational features predominating, and limiting

competition largely to the township in which the show is held, can accomplish a great deal towards advancing the interests of agriculture in the district.

THE EFFECT OF THE FAIR.

In 1868 the total vote for agriculture was $64,350, or $54,000 to agricultural societies, $10,000 eo the Provincial fair, and $350 to the Ontario Fruit Growers' Association. In 1903 the total vote was $184,000, $76,000 of which went to the agricultural societies. From these figures Mr. C. C. James showed that the agricultural societies of the province had not kept pace with other agencies in advancing the interests of agriculture. Had they done so, their annual grant would have shown a larger increase during these years. Continuing, Mr. James stated that the importance of a society's work did not depend upon the number of its members. The value of a fair does not depend upon a wide-open door. The original intention of the township society was to develop the agriculture of that particular township, not the neighboring one. The success of a show should not always be measured by the crowds attending. The farmer is in a better position than he was a few years ago, and will need more enjoyment, but this cannot be supplied by a two days outing at the fall fair, which exists for another purpose. There is a danger at present of going too far along the lines of reform. There should not be too much uniformity. Variety in the prize list is best.—Canadian Farmer.

SOUTH AFRICAN FRUIT IN MONTREAL.

Fruit Inspector Wartman reports the arrival in Montreal of a consignment of peaches and plums from South Africa. The fruit arrived in perfect condition, but the price, $1.00 per dozen, indicates that the market for it in Canada will be a rather limited one. There were 60 peaches in a single layer box, each fruit wrapped and plenty of finest quality excelsior at top and bottom of each case. Plums were put up in the same style, about 45 to the case. Mr. Walter Paul, the consignee, had also some very fine English hothouse grapes that arrived via New York in perfect order. These grapes were put in cotton batting bags, 1½ lbs. in each of four bags, or 5 lbs. to the box, with plenty of tissue paper clippings for padding. The price was $2 a pound.

GOOD AND BAD FRUIT IN BOXES.

Mr. John Brown, inspector at Glasgow for the Dominion Department of Agriculture, reports to the Fruit Division that a shipment of 1,422 cases of apples from a Burlington packer was landed at that port recently. This parcel consisted entirely of XXX Spys; all the apples were wrapped in paper and graded in size from 2½ inches upwards; the fruit was in splendid condition, and the extra trouble and care bestowed on the apples would well repay the shippers. The large sized fruit realized from 7s. to 7s. 6d. (small cases holding only about 35 lbs.), the smaller fruit, 6s. to 6s. 6d.

Another shipment by the same boat consisted of 416 barrels and 401 cases. These were nearly all Spys and were very much frosted and wasty. Had these apples been properly repacked and looked after, they would probably have landed in much better condition. Prices realized for barrels ranged from 10s. to 16s. The cases were even worse than the barrels: some fifty of these were thrown out, part of them being used to fill up wasty cases. These made from 2s. 6d. to 5s. 6d. (large cases). If our apples in cases are to maintain a reputation for strictly fancy quality, it will not do to send forward such fruit as that just mentioned.

UNIFORM PACKAGES.

Canada once more scores a point against the United States, this time in regard to uniformity in fruit packages. Our American cousins are still struggling with this question, while in Canada the fruit growers of Ontario, Quebec, British Columbia, Nova Scotia and Prince Edward Island have all adopted a uniform case 10 x 11 x 20 inches, inside measurements, for the shipment of apples. A case half this size is found a very suitable package for pears.

PACKING HOUSE FOR FRUIT.

The Walkerton Fruit Growers' Association have under contemplation the purchase or erection of a building for the storing and packing of fruit. This building will be known as the Central Packing-house. An ample supply of ice has already been stored up, and this ice will be utilized for cold storage purposes, when the shipping season arrives. When the building is ready for the reception of apples, an expert shipper will be employed to grade all apples brought in and to see that they are all properly shipped to the purchaser. In this way it is hoped uniformity in quality will be reached. Experience has amply demonstrated the fact that when every man grades his own fruie no fixed standard of quality can be secured, and the result is dissatisfaction and grumbling at the far end of the transaction.

CANADIAN APPLES IN LEEDS MARKET.

The Leeds Mercury says: "During the past few years Canadian apples have found a ready market in this country, and Leeds has received a fair proportion of the supply. It is a striking tribute to the quality of the fruit that although the supply of late has been in excess of the demand, prices have slightly increased. For cooking purposes Northern Spys are strongly recommended, whilst Baldwins and Greenings are also very good. There is very little difference in the price of these varieties, 1½d. to 3d. a pound being the general charge. Newton Pippins and Golden Russets are excellent dessert apples. Owing to the splendid quality of apples from the Dominion the demand for those from New York has suffered considerably."

DISPLACING UNITED STATES APPLES.

Says the Fruitgrower of February 11, 1904: "The United States Consul in Edinburgh records the fact that Canadian apple imports are gaining a very strong position in the Scotch markets. Mr. Fleming states that the system of inspection adopted in Canada and subsequently renewed at the British ports has served as a guarantee to the buyers of Canadian fruit, and has in this way proved useful both to seller and purchaser."

FRUIT PACKING CO. AT OAKVILLE.

At a meeting held in Oakville recently the matter of establishing a packing house was discussed. A. W. Peart, of Burlington, told how the apples from his district were shipped by the local association to England. Returns were most satisfactory, a number of good Old Country dealers bidding for their fruit. Special care was taken in grading and packing and each package was stamped with a private mark. Mr. Peart advocated co-operation in spraying. One man could secure an outfit and do the spraying for the neighborhood. Mr. Dawson, of Toronto, spoke of a company being formed that would erect central packing stations in all fruit districts. Boxes would be given the growers. When these were filled with all grades of apples they would be taken to the packing house, the apples graded, carefully packed and marked and sold in one lot if possible.

NOVA SCOTIA FRUIT COMPLIMENTED.

The following is a copy of the letter accompanying the medal presented by the Crystal Palace Co., of London, Eng., to the Nova Scotia Government for the display of Nova Scotia fruit to be seen at the Crystal Palace during the fall and early winter. It was addressed to J. Howard, Esq., agent general for Nova Scotia.

Dear Sir: You will be interested to learn that my directors have decided to mark their sense of the very excellent and attractive exhibit of Nova Scotia fruit which was held in the Canadian Court at the Crystal Palace during the months of November, December and January, by presenting a special commemorative medal to the Nova Scotia Government, who, we understand, in conjunction with the Fruit Growers' Association of Nova Scotia, were responsible for the display.

I am directed therefore to forward this medal to you as the representative of Nova Scotia in London and to ask you to be good enough to transmit it to the proper quarter.

There is no question that such periodical special exhibits do much to maintain a lively interest in the Canadian Court, and my directors are sanguine that the other colonies will follow Canada's practical example in utilizing the undoubted educational and commercial advantages which the Crystal Palace offers, for promoting the interests of our Colonial Empire among the 2,000,000 visitors who come from every part of the United Kingdom and of the world. Yours faithfully,

J. H. COZENS, secretary.

This exhibit for which this medal was awarded was the 128 cases condemned by Hamilton and others in the Department of Agriculture at Ottawa as unfit for exhibition purposes. The above is a clear verdict in favor of those who forwarded the exhibit.

LISTS OF SHIPMENTS.

Mr. Thomas E. Davis, inspector at London for the Department of Agriculture, reports that consignees in Britain complain that senders of Canadian produce do not forward lists of shipments, thereby causing great inconvenience. This is a matter which shippers should carefully attend to.

CHATHAM FRUIT GROWERS ADOPT POWER SPRAYING.

Secretary-Treasurer W. D. A. Ross, of the Chatham Fruit Growers' Association, writes the Fruit Division, Ottawa, that his association has purchased a power spraying outfit for the use of the members, and asks that Mr. J. C. Harris, who had charge of the government sprayer used in the illustration work in the Ingersoll district last year, be sent to start their machine. Mr. Harris recently gave the Chatham growers a talk on spraying, with which they were very much pleased. A good many of the members were only giving the power spraying project half-hearted support previous to his visit, but now they are all anxious to go ahead with the scheme according to the most improved methods. The association is also talking of putting up a packing house and evaporator, but are hesitating on account of the prevalence of the San Jose scale, which though confined to a limited area is gradually spreading in the district.

A FRUIT MARKS BILL IN NEW YORK.

If imitation is the sincerest form of flattery, Canada may well take it as a compliment that Senator Hill has lately introduced in the Senate of the State of New York a bill very much like the Dominion Fruit Marks Act. There is an additional clause in the New York bill requiring packages to be marked with the name of the place where the fruit was grown, but this clause is strongly opposed by the trade, who maintain that a large operator who repacks fruit brought into his storehouse by the carload, and coming from forty or fifty different shippers, could not possibly comply with such stipulations. In regard to the bill the New York Fruitman's Guide says: "It conflicts with the Interstate commerce law that forbids the passage of an act that hinders commerce between various states. Why Canada's law is a success is because it is a national law, but until such a law is passed in the United States the merchants in such States in which such a law obtains are at a disadvantage with the merchants of other States."

Hepaticas

THE TREES to their innermost marrow
Are touched by the Sun;
The robin is here and the sparrow,---
Spring is begun!

The sleep and the silence are over;
These petals that arise
Are the eyelids of Earth, that uncover
Her numberless eyes.

Archibald Lampman.

The Yearly Fight for the Fruit Crop.

Now that spraying has come to be generally recognized as a necessity in successful fruit growing, the question what sprayer to buy is a serious one for many growers. The illustration shows a Wallace Power Sprayer at work in the peach orchard of J. W. Smith of Winona, Ont. This Sprayer is highly spoken of by many growers. It is comparatively cheap, secures its power from the rear wheel, does not have to be recharged, requires no fuel, is not too heavy and is reliable and not expensive to operate.

The Canadian Horticulturist

MAY, 1904

VOLUME XXVII NUMBER 5

CO-OPERATIVE POWER SPRAYING IN CANADA

W. A. MACKINNON, CHIEF FRUIT DIVISION, OTTAWA.

THOUGH the fruit growing public of Canada has had instruction and encouragement in spraying for a number of years, it has begun to appear evident that small owners, as a rule, do not make a success of spraying by the ordinary methods. Many difficulties have combined to bring about this result. Among them may be mentioned the fact that the operation of spraying is unpleasant, inconvenient and highly distasteful to the average farmer.

It is totally different from his usual occupations; requires a plant and chemicals with which he is not familiar, and which must be handled with scientific accuracy if success is to be achieved; the plant remains idle during the greater part of the year, and finally, the work must be done just at a time when many other farm operations are pressing. Even those who have purchased an outfit and devoted much time to working it have sometimes failed to apply the mixture at exactly the right time or to distribute it thoroughly over every part of the tree, and the resulting failure has discouraged them and their neighbors from further effort.

Consideration of these facts, among others, induced the Honorable the Minister of Agriculture, to authorize the conducting of systematic experiments in power spraying during the spring and summer of 1903. The most successful of these were carried on in the neighborhood of Woodstock, and resulted in the production of almost the only No. 1 fruit in that section. The season happened to be a particularly bad one for fungous diseases in that part of Ontario, and the sprayed orchards, yielding 80 to 90 per cent. of perfect fruit, were in marked contrast to those which surrounded them, in which the yield of No. 1 fruit varied from 20 to 50 per cent.

Without going into details it may be stated that the spraying, which was performed four or five times on each orchard, at a fixed charge to the growers amounting to rather less than actual cost, was found both effective and economical, though the route was long and straggling, and some of the orchards were in by no means perfect condition as regards pruning and otherwise. The operation cost less than five cents per tree for each spraying. One should not speak with too much certainty after a single season's experience, but it seems probable that five cents per "tree spraying" should more than cover the cost for well grown apple trees. A 2½ horse power engine was

used, giving a steady pressure of about 100 pounds, with a 200-gallon tank and two lines of hose, carrying six nozzles each. Quarter-inch hose was used for the sake of lightness and was found very satisfactory. The Bordeaux mixture (with paris green added) was the only one applied, except in one or two cases towards the end of the season.

WORK WILL BE TRIED IN NOVA SCOTIA.

Arrangements are being made for carrying on a similar demonstration this season in the Annapolis Valley, N.S., where Inspector Vroom has charge of the preliminary arrangements; and near Ingersoll, Ont., under the direction of Mr. J. C. Harris. It need hardly be said that the fruit division will not make a permanent business of spraying orchards for owners. The object of the demonstrations is to induce growers to unite in groups, wherever 3,000 or 4,000 trees can be had within a distance of about five miles from end to end. Such a combination of growers could afford to purchase an outfit among them at a cost of something like $350, or to hire the use of such an outfit from its owner, who might undertake to do the work thoroughly at so much per tree.

Power spraying, it is hoped, will be taken up either on the co-operative basis or by men such as the threshermen, who could give their whole time during two or three months to this work, at a profit both to themselves and to the growers. One efficient man, who understands the preparation of spraying mixtures, who can learn how to manage a gasoline engine, and who can be depended on to do the work thoroughly at all times, will be sufficient for each group of orchards. He may require two or three assistants to drive and hold the lines of hose, but they need not be skilled, as he will direct the entire work.

THE ONLY LIKELY WAY.

It does not seem likely that in any other way spraying will become general throughout the country, and it is hoped that this method, overcoming as it does most of the objections to spraying either by power or hand, will eventually lead to a great improvement in the average quality of the apple crop of Canada.

Already as a result of the successful operation of the Woodstock outfit at least one fruitgrowers' association has ordered a power spraying outfit, and other groups of orchardists, as well as some large owners, are contemplating such a purchase. Growers appear only too eager to have the work done for them even if it costs them more than they have formerly been able to do it for. Mr. Harris, of Ingersoll, states that he could easily have taken orders sufficient to keep two outfits busy in his immediate neighborhood, though growers are asked to pay the actual cost, about the five cents per "tree-spraying." A group of King's county growers in Nova Scotia have made similar agreements for four sprayings during the present season, and there would have been no difficulty in securing a great many more orchards. It would appear, therefore, that new as the method is, it has appealed to the common sense of the growers, and there can be no doubt that they will very soon adopt it on their own account.

Examine the Apparatus.—Our spraying apparatus is overhauled a few days before we intend spraying. The hose and nozzles are examined carefully, for it does not pay to have "breakdowns" in the spraying season. The Bordeaux and paris green mixture is made very carefully, and the ferrocyanide test is always made to determine whether sufficient lime has been used. The agitator of the spray pump must be carefully looked after to see that it really agitates the liquid and keeps the paris green in suspension in the Bordeaux mixture.—(Prof. W. Lochhead, Ont. Agri. College.

CARE OF NURSERY STOCK

WILLIAM FLEMING, OWEN SOUND, ONT.

IMMEDIATELY on the receipt of packages or boxes of fruit trees, shrubs or plants from the nursery, convey them to some place sheltered from the wind and sun. On opening the bundles lay the goods out on the ground and check them to see that all is correct. Sprinkle them with water and cover with damp straw to keep the wind off. It has a beneficial effect to puddle the roots. Dig a round hole 2½ feet broad and 1½ feet in clayey soil. Half fill this with water and with a hoe or shovel mix clayey earth with the water to the consistency of paint. Dip the roots of the trees in this mud mixture. When partially dry give a second application. This covering of mud greatly protects the roots and stimulates growth.

TRENCH THE STOCK.

Dig a trench deep and wide enough to hold the roots and one-third of the tree trunks. Loosen the bundles so as to ease the roots and lay the trees in the trench, the tops leaning to the north down close to the ground. Cover the roots and one-third of the trunk of the trees with earth, covering the roots thoroughly. If the earth is dry sprinkle well with water and leave so trenched till planted in a day or two.

The ground for planting the stock in should have been prepared and properly enriched the previous year. There should be no grass nor sods to cause trouble after planting. Nothing should be half done.

LAYING OUT THE GROUND.

When laying out the land put a straight stake where each tree is to stand. Dig only one hole at a time and plant the tree in it. When this is done the tree occupies the place of the stake. Pass on to the next hole and plant the second tree, and continue this till all are planted. Doing the work in this way the trees will all be in their proper places. Planting should be done on a cloudy day if possible.

If the ground has a sandy bottom it matters little how the hole is dug and the tree planted. If it has a clay bottom it matters a great deal. Where the ground is heavy the greatest care is required. The hole must not be sunk in the clay, as the water sours under the tree in the hole and kills or injures the tree permanently.

The hole should be dug wide and deep enough to admit the roots of the tree. The surface earth should be thrown on one side and bottom earth on the other side of the hole so as to be convenient for refilling.

PLANTING THE TREES.

When planting the tree, stand it straight in the hole so it will occupy the exact place of the removed stake and set it one inch deeper than in the nursery. Let the surface earth be put in the hole first and thoroughly packed among the roots so that no crevices are left unfilled. When the hole is two-thirds full pour a pail of water in it close to the tree, and when soaked in thoroughly shovel the balance of the earth in the hole. Do not press or stamp the earth, as it would ruin the chance of the tree thriving.

If the ground is not dry, instead of watering, a barrow of long manure should be put on the ground two feet all round the tree, but not close to the trunk, to keep the ground moist. No manure should be put near the roots of the tree in the ground when planted.

The injured and decayed parts of the roots should be cut carefully off, and half of last year's growth should be removed and the top of the tree balanced. If the trees are allowed to take care of themselves after planting the greater half of them will die the first year and the balance will be permanently injured.

Compressed Air Sprayer Being Loaded. No. 1.

The illustration shows a gasoline engine compressing the air into one of two tanks on the waggon and filling the second tank with the mixture to be used. The tanks contain about 100 gallons each and it takes 10 to 15 minutes to fill them. The air tanks are charged up to 160 to 180 pounds pressure to the inch. When this compressed air is turned into the tank containing the mixture the liquid is forced out in the form of a fine spray. (See article by Mr. J. Tweddle, in this issue.)

Power Sprayer Here to Stay

JOSEPH TWEDDLE, FRUITLAND, ONT.

HAVING leased some 60 acres of my neighbors' apple orchards, and knowing the need of thorough spraying, I found the hand sprayer quite inadequate to do the work in the time allowed. A compressed air outfit, as shown in the accompanying illustration, was secured. It has all the latest improvements, including the Owen's spar and a hoist of my own invention for use on high trees.

This hoist does away with the use of the clumsy and dangerous derrick and the heavy labor called for in its use. By the present arrangement the nozzles, which are about 9 inches apart, and in a perpendicular line, can be made to cover the tree thoroughly and at the same time not overlap any part. This saves at least 25 per cent. in material and enables ten times as much surface to be sprayed as can be done with the hand sprayer with 3 or 4 nozzles.

The horse or team going at a good lively walk can do a large amount of work in a day. Twenty to 30 acres of average sized apple trees can be sprayed, using 1,500 to 2,000 gallons.

I spray only with the wind. The stronger the wind the better the work. The opposite side of the trees is covered when the wind changes, which usually occurs in good time to finish the work when required.

POWER SPRAYERS.

The power sprayer has come to stay. The past two seasons have been productive of much scab on apple foliage and fruit where no spraying was done. It is not, however, difficult to procure 80 or 90 per cent. of strictly clean fruit by spraying three or four times with Bordeaux mixture and white arsenic or arsenate of lead. Fruit from trees so treated has realized double to treble the net price that unsprayed fruit has brought. Nothing pays such handsome dividends as the power sprayer. It doubles both the crop and the price.

IMPORTANCE OF SPRAYING AND WHEN TO DO IT

W. T. MACOUN, CENTRAL EXPERIMENTAL FARM, OTTAWA.

ONE might suppose that farmers and fruit growers would spray their trees as a matter of course, just as they plough and cultivate their fields, since the advantages of spraying have been so well proven and demonstrated during the past 13 or 14 years by the best fruit growers of Canada and by men employed by the government to do this work. Unfortunately, there is yet a very large proportion of the men engaged in fruit growing who do not spray.

Some men spray their trees but are not satisfied with the results, the reason being that the mixture is not properly made, the trees are not sprayed thoroughly, or the spraying is not done at the proper time. Spraying is an expensive operation, and it is surprising that fruit growers continue to waste hard earned money by not doing the work properly.

The early sprayings are the important ones, and these are too often neglected on account of press of other work. When the spraying is done it is often too late to be of much service. A spraying calendar, with directions for making the different mixtures and solutions, will be sent free, on application to the Central Experimental Farm, Ottawa. A certain number of sprayings are suggested in the calendar and the times when they should be made.

It should be impressed on those who spray that if heavy rain occurs before the mixture has dried on the trees it will be washed off and the work must be done over again.. The neglect of this is probably one of the chief causes of poor success in spraying.

THOROUGHNESS IS REQUIRED.

Spraying should be done thoroughly and the underside of the leaves should receive as much of the spray, if possible, as the upper sides. Every leaf or fruit, or every part of leaf or fruit, missed means a possible foothold for disease or insect pests. The spraying should be done as nearly as possible at the times mentioned in the spraying calendar. A delay of a few days may mean the loss of practically all the mixture or solution used, as there might be no beneficial results.

At the Central Experimental Farm this spring the first spraying will be made during the last few days of April, depending on how far the season is advanced. The aim is to spray the apple trees just as the buds are breaking or have broken. The poisoned Bordeaux mixture (4 pounds copper sulphate, 4 pounds unslaked lime, 4 ounces paris green to 40 gallons of water) is used at that time. The object of this spraying is to prevent the spread of the Apple Spot Fungus and to kill any leaf eating insects.

The first spraying at this season was begun a few years ago when the Tent Caterpillars were very bad, as it was found that the young caterpillars began to work just as the buds were breaking, and could be easily killed at that time.

SECOND AND THIRD SPRAYINGS.

The second spraying will be made just before the flower buds open, which at Ottawa will be about two and a half weeks after the first application, the poisoned Bordeaux mixture again being used. This is to destroy leaf eating insects also, such as the bud moths and Tent Caterpillars, and prevent the spread of the Apple Spot Fungus. A third spraying with poisoned Bordeaux mixture will be made within a week after the blossoms fall.

The two first sprayings are important, but this third spraying is even more important still, as at this spraying the poison is applied

which is to destroy the Codling Moth. It is also a season when the Apple Spot Fungus is usually very active. These three sprayings are the most important and should not be neglected. At the farm we make at least two more for winter apples, and believe that taking one season with another it pays to spray winter apples five or even six times.

WHEN SPRAYING MAY BE DONE.

If a fruit grower feels that he cannot spray more than three times I would suggest making the first spraying just before the flower buds open, the second within a week after the blossoms fall, and the third from 10 to 15 days later. In districts west of Toronto, where there are two broods of Codling Moth, it would be well to make two sprayings of the poisoned Bordeaux mixture in addition to the banding of trees. These sprayings should be made about July 20 and two weeks later.

Plum trees will be sprayed while the trees are still dormant with copper sulphate and water (1 pound copper sulphate to 25 gallons of water), to prevent the spread of the brown or ripe and black knot. A second spraying for the same purpose will be made with poisoned Bordeaux mixture before the flower buds open. A third spraying will be given with the same object and mixture about a week after the blossoms have fallen. This spraying will also destroy the curculio.

As with apples, the early applications are the most important and should not be omitted. Pears should be sprayed at about the same time as apples.

This immediate vicinity has few growers of large fruit, as people became discouraged in the days of darkness. New interest, however, is now manifest, as farmers are putting out new orchards. My brother is setting out 300 trees this spring.—(W. H. Hutton, Smith's Falls, Ont.

Ownership of Roadside Trees

H. L. HUTT, ONT. AGRI. COL.

The council of the municipality in which I live is selling the beautiful shade trees along the highways for paltry sums of money and allowing them to be cut down. The trees are principally pines and elms growing wild along the fences. To me this seems scandalous, and if it is not stopped the beauty of our country will be destroyed. Can not the owner of the adjoining land or any ratepayer forbid this cutting ?—(E. E. D., Harrowsmith, Ont.).

Public officials elected by popular vote are usually very sensitive to the effect of public opinion, and if the pressure of public opinion can be brought to bear upon such a council probably this would be the best way to deal with them. This, however, may be too slow to prevent their seriously destroying the natural beauty of the highways. It may be necessary to resort to stronger means. If this has to be done, I give below the opinion of a legal friend :

A LEGAL OPINION.

" If the trees constitute an obstacle to the free use of the highway, as such, or are a nuisance, it is the duty of the municipal council to have them removed, and the council may have such trees removed whenever such removal is deemed necessary for any purpose of public improvement. The owner of adjoining property, however, is entitled to ten days' notice of the intention of the council to remove the trees, and the intention of the council must be expressed by a resolution of council regularly passed.

" Compensation must also be paid to the owner of the adjacent lands, but only if he has planted or protected the trees. No pathmaster or other person has any authority to remove any shade tree on the highway without a special resolution of council being first passed.

" Under R. S. O., Chap. 243, Section 2, Sub.-Sec. 4 : 'Every growing tree, shrub or sapling whatsoever, planted or left standing on either side of any highway for the purpose of shade or ornament, shall be

deemed to be the property of the owner of the land adjacent to the highway and nearest to such tree, shrub or sapling.'

"This property of the adjoining owner in the trees is not absolute, however. It is of a peculiar character. The trees cannot be cut down without notice to him as above mentioned, nor yet can he himself cut them down or remove them, unless a special resolution of the council has been passed, without becoming liable to fine and possibly imprisonment."

Advice to Fruit Growers

"Fruit growers will do well," said P. J. Carey, of Cobourg, to the Horticulturist a few days ago, "If they take long to consider before investing in the method of protecting trees against almost all known diseases advocated by a firm which has operated in some of the western counties of the province. The firm claims that by boring a hole into the trees and giving them a sort of hypodermic injection of a mixture composed in part of charcoal, sulphur, soda and gunpowder, the sap will dissolve this mixture and carry it to all parts of the tree, thereby protecting it against the various pests.

"The firm which is selling this mixture presents its case in such a plausible manner that a large number of fruit growers have been led to adopt the method which I am satisfied is absolutely worthless. In a number of cases parties have actually paid $200 for townships for the right to sell this mixture. At a number of the meetings I attended during the latter part of March and the beginning of April with Mr. Sherrington, of Walkerton, we found growers who had paid as high as 25 cents per tree to have their orchards operated on in this way. We told them frankly what we thought of the method—that it was no good. It has been tried so extensively in the United States that Prof. Taft, at Washington, has issued a warning to beware of the method."

Growing Catalpa Speciosa

H. L. HUTT, AGRI. COL., GUELPH.

I have read contradictory reports concerning Catalpa speciosa Would you as a farmer plant them out for fence posts or shades? Are they hardy? Do they attain sufficient size to wire to in five or seven years? If you recommend them, where can the seed be obtained?—(W. J. C. Franconia, Ont.

CATALPA SPECIOSA, commonly known as the Hardy or Western Catalpa, is quite hardy in Southern Ontario, and even does fairly well here in Guelph, where we have several species, this, however, being the hardiest of the lot. This species has been largely planted in the west for shade and also for fence posts. It makes a very rapid growth from the seed and usually attains a height of two feet the first year.

On good soil and well taken care of, it should be sufficiently large to support fence wires in five or six years. I have seen it planted for this purpose in some parts of southern Ontario, where it has proved a complete failure, but this was largely due to lack of attention. The trees should not be left to grow in sod without protection of some sort. If they can be kept cultivated, or even heavily mulched, they will make double the growth that they would in sod.

As shade and ornamental trees they are very desirable, not only on account of their large leaves but because of the large showy flowers which appear in July. The seed is listed by J. M. Thorburn, 36 Cortlandt St., New York, at one dollar per pound. If good seed can be procured, the trees can be very cheaply grown from seed. They should be started the first year in nursery rows and kept cultivated the same as corn. In the spring of the second season they should be taken up and transplanted into other rows or where they are to remain permanently. The seedlings form very strong tap roots, and give difficulty in transplanting unless taken at one year.

Planting Fruit Trees

SMITH & REID CO., ST. CATHARINES, ONT.

TO beginners in fruit growing a few hints, at this season, on the planting of trees may be of value. There are a number of important points which should be carefully watched. Before the planting is done both the soil and the trees require to be carefully prepared. For fruit trees the soil should be dry—either naturally so or by thorough drainage. It may be well prepared by twice plowing. Manuring is necessary in all cases, except on new land. To insure good growth, the land should be kept in as good condition as for a crop of wheat, corn or potatoes.

PREPARATION OF THE TREES.

Fruit trees as sent from the nursery vary from five to seven feet in height, with the naked stems or trunks and a number of branches at the top forming a head. These branches should all be cut back to within three or four buds of their base. Cut off smoothly all bruised or broken roots up to the sound wood. In case of older trees prune in proportion. When digging the holes for the trees make them large enough to permit the roots of the tree to spread out in their natural position. When the tree has been pruned, as before directed, let one person hold it in an upright position in the hole while a second shovels in the earth. The finest and best soil from the surface should be placed among the roots, care being taken to bring every root in contact with it. In dry weatner, when the hole is nearly filled, a pail of water may be used to wash the earth in around the roots. Guard against planting too deep; after the ground settles trees should stand as they did in the nursery. In dry gravelly ground the hole should be dug twice the usual size in depth and filled in with good loamy soil. If the trees are tall and much exposed to winds, tie to a stake in such a manner as to avoid chafing.

Compressed Air Sprayer at work. No. 2.

A large orchard can be effectively sprayed in a short time by one of these sprayers equipped with a spar as here shown. This spar is adjustable and can be moved when desired, until the upper part is entirely above the lower, thus not duplicating the spray. The gasoline engine, used to load the tanks, is usually kept at the nearest point to the orchard where a good supply of water can be obtained. (See article by Mr. Tweddle on page 188 in this issue.)

MULCHING.

When the tree is planted place around it as far as the roots extend and a little beyond, five to six inches deep of rough manure or litter. This prevents the ground from baking and cracking and maintains an even temperature about the roots.

After they have been set out the ground should be kept clean and loose around all trees, as a growth of grass will stunt their growth.

I spray the ordinary Bordeaux mixture on plums three times a season and several times on apples with good results.—(W. O. Burgess, Queenston, Ont.

Hints on Pear Growing

R. L. HUGGARD, WHITBY, ONT.

PEARS are not grown as plentiful as that class of fruit deserves. To get the best results the land should be a good clay loam surface, with a stiff clay subsoil well underdrained. No varieties of fruit trees give their best results on wet or soggy soil.

The pear requires less pruning than almost any other fruit tree. Pruning should be done while the trees are young, as very little pruning is required after they come into fall bearing.

I have tried both clean cultivation and growing in grass, simply cutting the grass once during the year. The result showed clearly that cultivation is decidedly the best both in the growth of wood and fruit. There are many varieties that it will pay to thin, especially the Kieffer, Bartlett, Jules Guyatt, and frequently Louise Bonne, Lucrative and others that have a habit of overloading.

VARIETIES THAT NEED THINNING.

I have never found it necessary to thin Clapp's Favorite, Lawrence, Leonard, Anjou or Duchess d'Angoleme, as they generally mature all the fruit that sets each year. For several years past the Seckel, although one of the smallest pears I grow, has brought the highest price per bushel on the market. This, no doubt, is on account of its superior quality. The trees, although slow growers, are quite hardy and seem to be free from pear blight.

About April 1, or as soon as convenient before the buds open, I spray with copper sulphate and lime, and afterwards with the full Bordeaux mixture, adding whale oil soap. The fertilizers used in all the orchards is barnyard manure and ashes. I have tried several brands of fertilizers, but none seem to give as good results as the ashes and manure. No trouble has been experienced from blight for several years.

Trees Girdled by Mice.

H. L. HUTT, ONT. AGRI. COLLEGE.

The mice girdled my trees to a depth of two feet below the snow level. The trees were only put out a couple of years ago. Is there anything I can do to save them ?—(B. C. Abbott, Lucan, Ont

IN the case of young trees only a year or two old they may better be taken out and replaced by new ones if the injury is at all serious. In the case of older trees, which are well established and ready for bearing, it is advisable to try to repair the damage by binding or by bridge grafting.

If the injury is close to the ground, the best thing to do is to bank some earth around the injured part. If the injury is too high for this to be done, the next best thing is to apply a plaster of soft clay or fresh cow dung, which should be firmly bound about the tree with a strong bandage.

In the case of trees which have been entirely girdled, they may be saved by bridging the injured part with long scions inserted beneath the fresh bark above and below the injury. Several of these should be put in so as to convey the cambium from the upper to the lower parts of the tree. The whole injured portion should be covered with the plaster and bandaged as previously mentioned.

If the trees had been protected last fall by wrapping about them a band of felt paper or something of that kind, as was advocated by Mr. Harold Jones and others in these columns last fall, damage might have been avoided.

Loss Through Neglect.—A great deal of damage was done to fruit trees during the winter by mice chiefly in grassy and neglected orchards. If growers would practice clean cultivation and clean up the rubbish around the fences they would not be troubled with this pest. I have met growers who say that they have lost hundreds of trees.—(A. E. Sherrington, Walkerton, Ont.

Black Knot in the Plum and Cherry Plantation

L. W.

THE black knot has caused such devastation among the plum and cherry trees of Ontario that for a time their cultivation was almost given up. Since the cause and the remedy have both been found no one need fear to plant these fruits. The cause is a parasitic fungus which grows within the bark, and not, as many even yet believe, the oviposition by some gall insect.

The remedy consists in cutting off and burning all knots and infested branches in winter or early in the spring, before the spores of the knot, which live in it over winter, have an opportunity to develop and be scattered. Many people simply cut off these branches and leave them lying about. This is almost as great an evil as leaving them on the trees.

Often a lot of neglected plum and cherry trees in a fence corner are left undestroyed in the vicinity of good trees, the owner evidently being either too careless or too ignorant to have them cut and burned. Such clumps of neglected trees often produce spores of the black knot enough to destroy the orchards of a whole neighborhood.

Where branches of valuable trees are affected with knots which cannot be removed without serious mutilation, the knots may be carefully pared off with a sharp knife and the wound well painted over with kerosene.

Spraying with Bordeaux, just as the buds are breaking, for rot of the fruit is very important, especially with plums and such varieties of cherries as Black Tartarian, Elkhorn, Elton, Napoleon and Yellow Spanish. The sour cherries are not very subject to it. Before the buds open copper sulphate may be used, one pound to 20 gallons of water, but this cannot be safely applied to the foliage.

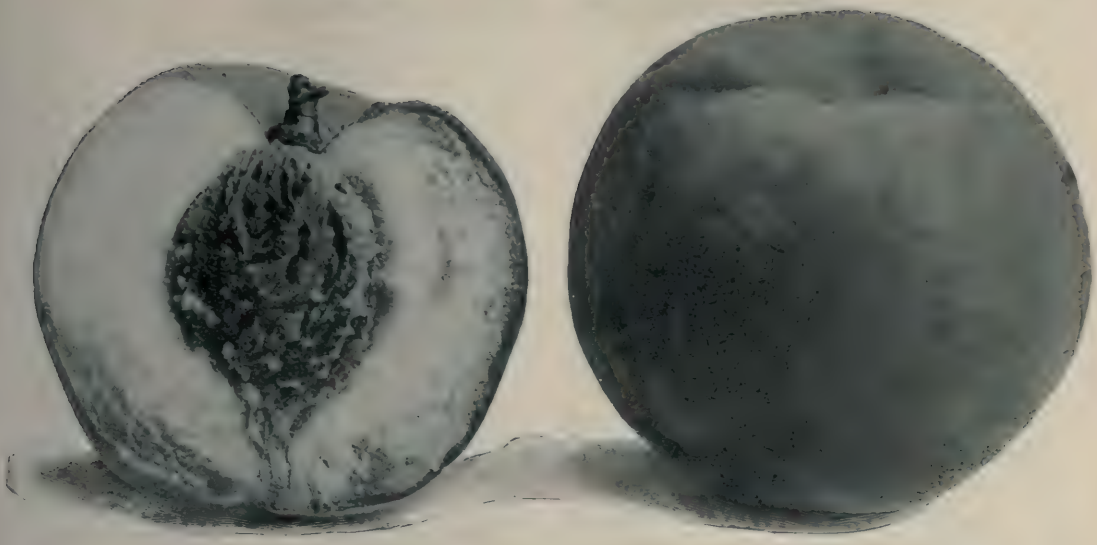
Making the Bordeaux Mixture

PROF. WM. LOCHHEAD, ONT. AGRI. COLLEGE.

THE Bordeaux mixture is so often recommended for application in the orchard and in the small fruit and vegetable garden, requests are constantly being received for information as to how it is made. For fungous diseases use copper sulphate (bluestone), 4 pounds; lime (fresh), 4 pounds; water, 40 gallons.

In making this mixture observe the following precautions and directions: Use nothing but fresh quick-lime. The lime should be slowly slacked by the gradual addition of water. For convenience stock solutions of milk of lime and bluestone should be prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 pounds of fresh lime are gradually slaked, and barrel made up to 25 gallons of water; in barrel No. 2, 25 pounds of copper sulphate, or bluestone, are dissolved in 25 gallons of water. For rapid dissolving use warm water. These are the stock solutions. Each gallon of milk of lime contains one pound of lime, and each gallon of bluestone contains one pound of bluestone. When we wish to make up a barrel of Bordeaux mixture we take out 4 gallons of milk of lime and 4 gallons of bluestone solution, and pour each separately into the barrel in which are already 32 gallons of water.

Never mix the concentrated stock solutions together. If the milk of lime and bluestone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. Test the Bordeaux to find out whether sufficient milk of lime has been added. This is most easily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In test-



The Fitzgerald Peach.

The Fitzgerald Peach is a variety which serves to extend the season of high class yellow peaches a few days later than the Early Crawford. It is too tender for very long shipments, but to the taste of many people the flavor is finer than that of the Crawford. ORIGIN: Oakville, Ont; TREE: hardy, healthy and productive; FRUIT: Size, two and a quarter inches in either diameter; Form, roundish, ovate; Color, bright yellow, partly covered with deep red; Down, moderate; Cavity, broad and deep; Apex, a small point in a slightly depressed basin; Sutur, distinct; Stone, free. FLESH: yellow, with red at pit; Texture, tender and juicy; Flavor, excellent. SEASON: Sept. 1st to 7th.

ing, place some of the Bordeaux, which has been thoroughly stirred, in a saucer, and add a few drops of the ferrocyanide. If sufficient lime has been used, no discoloration will appear, but if insufficient, a deep dark brown color will be produced.

Always strain the milk of lime to prevent gritty particles from clogging the nozzles. Use a fine nozzle; do not soak nor drench the tree. The stock solutions will keep, but the Bordeaux mixture becomes useless after standing for a day or two.

COMBINATION BORDEAUX AND PARIS GREEN MIXTURES.

This mixture is for fungous diseases and leaf-eating insects. It is prepared like the Bordeaux, but 4 ounces of paris green are added and thoroughly stirred before spraying. Copper sulphate (bluestone), 4 pounds; quick lime (fresh), 4 pounds; paris green, 4 ounces; water (1 barrel), 40 gallons. In small quantities it may be made as follows: Bluestone, 4 level tablespoonfuls; quick lime, 4 level tablespoonfuls; paris green, 1 level tablespoonful; water, 1 pail (2 gallons).

Fruit Scions.—At the Central Experimental Farm, Ottawa, a great many requests for scions of different varieties of fruits are received. While W. T. Macoun, the horticulturist, is always pleased to furnish scions where it is possible to do so, a great many kinds, he says, do not succeed at Ottawa which are needed in other parts of Ontario. It is necessary, therefore, to disappoint fruit growers quite frequently. Many fruit growers would like to know where scions can be obtained at reasonable rates, either from nurserymen or from fruit growers.

When I set out my apple orchard twenty-two years ago I committed the mistake many do the first year, of planting too many early bearing apple trees.—(A. Shaw, Walkerton, Ont.

SPRAYING THE APPLE ORCHARD

L. W.

SPRAYING an apple orchard is an expensive as well as a disagreeable job, but in nine years out of ten it brings large returns if done with intelligence.

Some people spray with no definite object in view; they read in the papers that the work should be done, and they do it with a foolish expectancy of magical results. Others, having tried it and failed, go to the opposite extreme and declare spraying a useless operation.

Spraying must be done thoroughly and with a definite object in view if definite results are to be obtained. Every inch of wood not covered is liable to the attack of the enemy. The finest nozzles must be used, and the spray applied to every part requiring protection in such a fine vapor that like a mist it will deposit itself without running off in drops to the ground.

The trees must be prepared for spraying by a most thorough and careful pruning, else much costly material will be wasted upon useless wood. If scab is present, an especially severe pruning is judicious. Old apple trees are often allowed to grow too high to be easily reached by sprayer, pruner or fruit gatherer; these should be topped well back to a reasonable height.

For aphis, oyster shell bark louse and San Jose scale, and all such insects as do not eat the foliage, but simply suck the juices of plants, kerosene emulsion, whale oil soap, or the new sulphur and lime mixture are the standard remedies. The latter is a winter or early spring spray, while the others may be applied in summer, in certain proportions, without injury to the foliage. Not a day of delay should pass after discovery of aphis before the kerosene emulsion is applied, for when once the leaves are curled with them it is almost impossible to destroy them.

For insects that chew, such as the tent caterpillar, the bud moth, the canker worm, codling moth, and for such fungi as apple scab, bitter rot, apple canker, etc., apply Bordeaux, with paris green or arsenite of lime added, which is a combined fungicide and insecticide.

MAY BE USED IN THE GARDEN.

Kerosene emulsion is useful, not only in the apple orchard, but also in the garden for destroying aphis on the rose bushes. It is prepared according to the following formula:

Hard soap, ½ pound, or soft soap 1 quart.
Boiling water (soft), 1 gallon.
Coal oil, 2 gallons.

After dissolving the soap in the water add the coal oil, while still boiling, and stir vigorously for five or ten minutes. This will form the stock solution. When using, dilute with 9 to 15 parts of water.

Bordeaux may be prepared according to the following formula:

Copper sulphate, 6 pounds.
Quick lime, 4 pounds.
Water, 1 barrel of 40 or 50 gallons.

First dissolve the copper sulphate in say ten gallons of water, suspending it in coarse sacking. Use an earthen or wooden vessel for this purpose. When the copper sulphate is dissolved pour the solution into the spraying barrel and half fill the barrel with water. Next slack the lime, diluting it with water to at least ten gallons: then pour this milk of lime into the spraying barrel through a wire strainer to keep out all lumpy bits. Add water to fill the barrel, and stir vigorously.

WHERE TIME MAY BE SAVED.

For large orchards much time will be saved by having stock solutions in readiness; that is a barrel of copper sulphate solution and a barrel of milk of lime. If these are

made so that in the one there is one pound of copper sulphate to a gallon of water, and in the other one pound of lime, it is a simple thing to take six gallons of the former and four of the latter and pour them together in the spray barrel, afterwards filling it with water.

The arsenite of lime is cheaper and better than paris green. The best formula for its preparation is that known as the "Kedzie mixture," which is as follows:

White arsenic, 2 pounds.

Sal soda (washing soda), 8 pounds.

Water, 2 gallons.

Boil together about 15 minutes until the arsenic is all dissolved; replace the water lost in boiling and place in an earthen or wooden vessel as a stock solution. One pint of this is equal in strength to four ounces of paris green and may be used in the same way; that is, add one pint to each barrel of Bordeaux, or if the latter is not used, use one pint of the solution, two pounds of quick lime and say 45 gallons of water.

WORK THE PEACH TREES REQUIRE

L. W.

THE pruning of the peach trees may be done at any time, but preferably just before the spring growth begins, especially if wood growth needs encouragement. Many Canadian peach growers prune in such a way as to produce long sprawling arms with tufts of bearing wood at the extremities. This is a great mistake.

Two-thirds of the young growth should be cut off every year, from the first year after planting, and the tree kept round headed all its life with bearing wood almost to the very trunk. Such a tree will prove more productive, longer lived and fairer to look upon than the sprawlers above described.

AN ENEMY TO WATCH FOR.

The peach root borer is often a most serious enemy of the peach tree, giving it a sickly look and resulting in premature death. The presence of the pest may be detected by the gum and castings about the root at the ground surface. The best remedy is to dig out the grub with a sharp knife and kill it either this month or early in June, before it has transformed into a moth. The grub is easily found and readily identified, being a yellowish color and about an inch in length.

The yellows of the peach is still a mystery even to students of plant pathology, and to the peach grower it is the most formidable and destructive of all diseases affecting his orchard. If diseased trees are allowed to remain, the yellows will soon spread through an entire orchard, first making the fruit useless and afterward destroying the tree.

The only known method of checking it consists in digging out affected trees, and burning them root and branch. Trees having diseased fruit should be "blazed" in fruit season, and early the following spring they can be pulled out by the horses. A log chain is attached as high up as convenient, and if the ground is wet a span of horses pulling first one way and then another will quickly take out a tree, roots and all. If this work has not been done, no time should be lost in attending to it.

I spray peaches once a year with lime and sulphur, using 30 pounds of lime and 30 pounds of flower of sulphur to 80 gallons of water. I find 30 pounds of first-class white lime quite sufficient, as more makes the trees white, which is no gain. An excess of lime increases expenses and clogs the spraying nozzles.—(W. O. Burgess, Queenston, Ont.

PROTECTING THE PEAR TREES

L. W.

THE spraying hints given in another column for the apple orchard will apply for the most part to the pear. Bordeaux applied before the buds open will go a long way in preventing leaf blight and scab, two very common fungous diseases of the pear tree. A second application ought to be made just before the blossoms open out.

These two sprayings will prove the most beneficial of any that can be given during the season. If the work is omitted during any month of the year, it should not be in the month of May.

For pear psylla or blister mite, use kerosene emulsion when the leaves open, and for codling moth add arsenite of lime to the Bordeaux and apply when fruit is about the size of peas.

In case the Bordeaux is not used after the fruit is formed. use one pint of the stock solution of arsenic and washing soda, described under the "apple orchard," to two pounds of lime and 45 gallons of water.

PREVENTING THE SPREAD OF BLIGHT.

The blight is the terror of the pear grower and many a fruit grower has become thoroughly discouraged on account of its ravages. For a long time the nature of this disease was a profound mystery, but recently it has been found to be due to a very minute fungus which is present in the sap and in the leaves and blossoms of the blighted portions. The virus is carried chiefly by insects; and bees, when visiting the infected blossoms, often carry the germs of blight to the bloom of healthy trees.

To prevent the spread of blight all infected wood should be cut and burned before the blooming period. If this has not been done, no time should be lost before doing it.

Trees for the Farmers —As provided by the Minister of Agriculture, we have set aside two acres of land at the College farm on which to grow trees for planting the farmers' wood lots. It is estimated that one acre of nursery will accommodate 60,000 seedlings. We are buying this year a large number of small plants, which will be ready for distribution in the spring of 1905-06. In addition we will plant seeds during the coming summer and fall so as to keep up our stock from year to year. We are planting this year Norway Spruce, White Pine, White Ash, American Basswood, Sugar Maple and American Elm.—(G. C. Creelman, Pres. Ont. Agri. College.

I prune my apple orchard every spring, and some years do some pruning in June. I believe June is the time to cut off any large limbs that should be removed.—(A. E. Bellman, Bowmanville, Ont.

Spraying Formulas.—In the April and May issues of The Horticulturist last year was published an article and spraying calendar prepared by Prof. Wm. Lochhead, of the Ontario Agricultural College. It described fully how the various spraying mixtures are prepared and when they should be applied to control such pests as canker worms, tent caterpillars, mildew, scab, oyster-shell bark lice, curculio, brown rot and many others prevalent at this season. Subscribers desiring such information will do well to look up their back numbers. Copies of these issues will be sent on request if ten cents in stamps is enclosed.

We planted some Mackintosh Reds this year. They appear to be A. 1 and are proving to be better keepers than we expected. We have some of last fall's fruit which is still in excellent condition.—(Geo. Hutton, Easton's Corners, Ont.

Picking Strawberries on an Ontario Fruit Farm.

With many Fruit Growers in Ontario, Strawberries are among their best paying crops. On some plantations several acres of these berries are grown yearly. The illustration shows pickers at work in the strawberry fields of Morris & McCullough, Nantyr, Ont. (See article on this page.)

Growing Strawberries on a Large Scale

MORRIS & M'CULLOUGH, NANTRY, ONT.

DURING the last six or seven years we have grown three to six acres of strawberries each year. In preparing the land we like it well manured and worked up in some root crop the year before, such as turnips, potatoes, sugar beets or something of that kind. This sprouts any seeds that may be in the manure and leaves the land clean.

In the late autumn the land is plowed to a good depth, giving the winter and frost a good chance to pulverize the soil. As soon as the land is dry enough in the spring the harrow is put on it every week until planting or near planting time. It is plowed nicely and harrowed and rolled. If it is lumpy the harrow and roller are kept on until the land is in nice condition for setting the plants. The early harrowing keeps the moisture from escaping.

In plants we are not satisfied with anything but the very best of whatever variety we may desire. Care is taken to see the new plant has the same gland system as that from which it came. It does not pay to be too careful about expense in securing plants.

SETTING OUT THE PLANTS.

Our method in planting has been to set small stakes at both ends of the field 4 feet apart. Some varieties, such as the Clyde, should not be more than 3 feet apart. From these stakes a line is stretched, a man and boy starting with it at one end. If we have help enough the men start at both ends. Two men in this way should put in about 5,000 plants in a day.

After planting, the scuffler should start and go through them at least once a week, or as soon as the ground is dry enough after a heavy rain. This should continue all summer, and also the free use of the hoe among the vines to keep them perfectly clean. Keep all bloom picked off during the first season.

Our mulch is put on in the early winter after the ground is nicely frozen. The rows are covered with pea straw if we can get it, if not we use the next best thing we can se-

cure. In the spring, as soon as the hard frosts and cold winds are over, we go along each row pulling or raking the mulch off the rows and leaving it between them. This answers three purposes : it keeps or holds the moisture in the ground during the dry time, it keeps the berries clean during the heavy rains of the summer, and also answers for a cushion on which the pickers can sit down in great comfort.

Strawberries are a risky crop, but like everything else, a man with plenty of push and perseverance and with good methods will succeed and make money. Several varieties have been tried, but this year we have nearly settled down to the Williams, which will be the principal crop, although some of the William Belt will be grown. The Clyde has been discarded. It shows a great bloom, but only matures a very limited number of berries. Glen Mary and Marshall are fine berries and productive, but are not good shippers, being soft. The Burbach is a preserving berry and a good fruiter, but soft. Several other varieties have been tried, but the Williams is preferred as a commercial berry to any other.

SPRING WORK IN THE FRUIT GARDEN

WM. HUNT, ONT. AGRI. COLLEGE.

EARLY in May is usually the best time to transplant young strawberry plants. The young runner plants are then just beginning to make new roots. For a small garden patch leave 2 feet 6 inches between the rows, and set the plants about 15 inches apart in the rows.

The ground should be dug thoroughly and deep before planting, and should be rich in humus or fertilizing properties. Autumn prepared ground is best for a strawberry patch. Never attempt to make a new patch on land where strawberries have been grown before, unless the ground has been cropped with some other garden crop for three or four intervening seasons.

A garden trowel is the best tool for setting out strawberry plants. Press the soil firmly around the roots of the plant, and see that the roots are all under the soil, and at about the same depth as they were before the plant was taken from the old patch. Water the plants well once, and then pull a little light fresh soil around over the roots. Keep the soil well surface-stirred between the rows and free from weeds all the summer. If the weather is at all favorable once watering the plants should be sufficient.

SOME GOOD VARIETIES.

A few good varieties for a small garden for a succession of fruit is the Marshal, Clyde, Nick Ohmer, Haverland and Bubach. The two last named have not perfect blossoms, and must be planted only a row or two from some of the other varieties mentioned.

Fork over the soil lightly between the rows of strawberry plants just coming into flower, and remove all weeds. A mulch of straw, or the clippings and grass cuttings from a lawn makes a good mulch for a strawberry patch, as it keeps the fruit clean and free from earth and sand. Work the mulch well in underneath the foliage and bunches of blossoms.

WATCH THE GOOSEBERRY AND CURRANT BUSHES.

Gooseberry and currant bushes will require careful watching toward the end of the month for caterpillars. A weak solution of

paris green water sprinkled on the foliage before the fruit is formed will oftentimes prevent the attack of these pests for a whole season. Avoid using the paris green solution after the fruit has formed. A small teaspoonful of paris green will make nearly two gallons of the solution.

White hellebore powder dusted over the leaves will destroy the caterpillar. This can be used after the fruit has formed if not used too liberally on the fruit itself. Dust the hellebore on when the dew is on the leaves, or after a rainstorm before the foliage is quite dry.

The crop of fruit on raspberry bushes will be increased in quality and weight if a mulch of half rotten stable manure is spread over the ground around the canes, more especially if the weather is very dry and hot when the fruit is swelling. The mulch should be kept an inch or two clear of the canes, and should not be over an inch or two in depth. I have mulched gooseberry bushes in very dry seasons, and it has prevented to a great extent the fruit dropping from the bushes, as it often does, when the mercury registers 90 to 100 degrees in the shade in July.

In England where the climate is much more moist than here, it is quite a common practice to mulch not only small fruits, but also dwarf pear, plum and apple trees during the hot summer weather that often prevails when the fruit is swelling. In a small garden the mulching process would not be an arduous task, where grass or lawn grass cuttings or trimmings is available.

Never waste the soapsuds. These poured around the roots of fruit trees or on the ground around the roots of most vegetables are very stimulative and beneficial to plant growth of almost every kind, and have a deterrent effect on the increase and attacks of insect pests.

Destroying the Currant Worm

L. W.

THE currant worm is the great enemy of the currant and gooseberry bushes. The female fly deposits her eggs on the under side of the young leaves, in rows on the larger veins. In about ten days they hatch out and feed in companies, soon stripping the bushes of their foliage.

The usual remedy is powdered hellebore mixed in water, in the proportion of an ounce to a pailful. I have found paris green very effective, one teaspoonful to a wooden pailful of water, but of course it can not be used for the second brood, which often appears when the fruit is ripening.

There are far too many branches, in my opinion, left on trees, the result of which is small fruit, and expense in picking and injury to trees.—(A. Shaw, Walkerton. Ont.

There is a good opening for a man who will buy a sprayer and contract with farmers to spray their orchards at a nominal price say 5 cents per tree. Hundreds of farmers are anxious to have their orchards sprayed, but cannot afford to do the work, and do not know how to go about it. A man with a spraying outfit who will do this work can make a handsome income in the same way that the threshers do in the fall. —(P. J. Carey, Cobourg, Ont.

My pruning this spring was done in a drastic manner. Many large limbs were cut off that might split off, and all the lower limbs so that air might pass through the trees, also to permit of better cultivation. The wounds were painted about two weeks after cutting, commencing with those earliest pruned. I have to await the results, but I have no fear of the outcome.—(A. Shaw, Walkerton, Ont.

THE RASPBERRY PATCH

L. W.

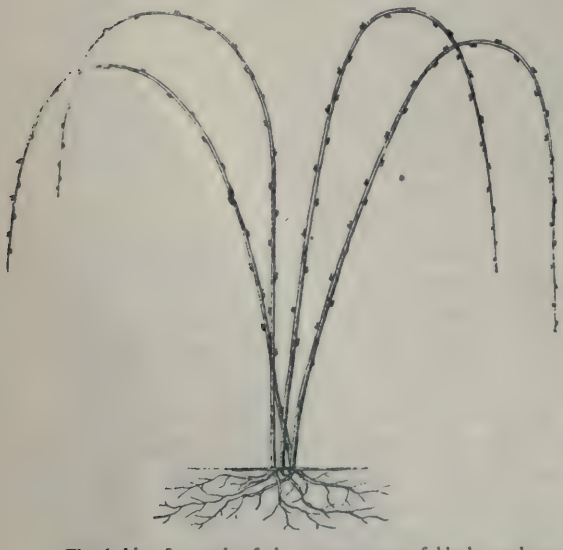
THE raspberry field is considered by many fruit growers the most remunerative part of their plantations. The profit depends largely on the soil; if heavy, or poor, or too dry the best results cannot be expected. On deep, rich, moist sandy loam most satisfactory returns may be counted on.

The pruning out of the dead canes, which fruited last year, is completed by most growers early in April. If not yet finished, the work should be hurried up, and all rubbish burned, so that nothing will interfere with early and constant cultivation.

The planting of red raspberries in April is usual, but some growers prefer to wait until May and move the young growing shoots. If these can be taken up and set immediately after, the plan is excellent, and few failures will result. Take them up with a ball of earth attached and set them at once in holes prepared for them.

PLOWING INJURES THE ROOTS.

Plowing the small fruit plantations is not as a rule to be commended; not even with a one-horse plow, because it is almost certain to cut the roots and lessen the vitality of the bushes. It is better to use a first-class one-horse cultivator and keep it constantly going until the fruiting season. A one-horse disc which will stir the ground to a depth of ay three inches without disturbing the roots is even better still.



The habit of growth of the young canes of black raspberry plants is here shown.

Dark brown or reddish spots, sometimes with a light centre as here shown, may be seen on the foliage of raspberry plants when it is attacked by the fungus disease, anthrocnose. If not checked by spraying, as described on this page, the disease will soon ruin the plantation.

Blackberries need topping during the growing season unless the object in view is the propagation of young plants., The habit of growth of the young canes is shown in the illustration. With a little encouragement they will reach to the ground and take root.

If the object is to harvest as much fruit as possible, these canes should be stopped at a height of about 2½ or 3 feet, so that they may make a stocky growth and throw out laterals from each bud.

GUARD AGAINST THIS DISEASE.

Anthracnose of the raspberry is a contagious fungous disease which spreads rapidly especially during wet weather. The first

The white pits, surrounded by a dark bluish circle, which form on the young canes of raspberry plants when attacked by the fungus disease anthracnose, are here shown. A remedy is provided by spraying as described on this page.

appearance of this disease, early in June, may be recognized by small white pits on the young canes, surrounded with a dark bluish circle. These pits soon enlarge and spread over the canes, sometimes completely girdling them. The disease may also effect the foliage, appearing in the form of dark brown or reddish spots, sometimes with a light centre, as shown in the accompanying illustration. The spots soon enlarge and cause the foliage to dry and curl up as if a fire had gone over the plantation.

The remedy is a preventive one, viz., to spray in early spring with blue vitriol, one pound to 20 gallons of water, and during May with Bordeaux.

The horse that draws the cultivator through the raspberry patch will do better work if he wears a wire muzzle, so that he will not have his attention diverted from his work while nipping off the young growth. A leathern apron may be provided to protect his breast from scratches. This is especially desirable in cultivating the blackberry plantation.

I would strongly advise all owners of vineyards to spray their vines two or three times a year with the Bordeaux mixture. It not only prevents disease and fungous growth, but gives the vines a healthy appearance, and the fruit will be clean, bright and nice.—(Aaron Cole, St. Catharines, Ont.

I plant my raspberries in rows about 5 feet apart, with 3 feet between the rows.—(D. Bettschen, Violet Hill, Ont.

A Practical Grape Grower's Methods

W. F. KYDD, SIMCOE, ONT.

IN growing grapes my method has been to plant vigorous growing varieties, 12 feet apart in the row, with 10 to 12 feet between the rows. Dig a hole about 2 feet square and 1 foot deep. Place the vine at the back of the hole and spread the roots straight out, covering them with several inches of top soil. Tramp the soil down quite firm, then fill the hole with loose earth.

When planted cut the vine back to three buds. After these buds have made a growth of several inches, cut off the two poorer ones, as only one is required for my method of growing, which is called the Kiffen system. In this system only two vines are needed. The first is 3 feet from the ground, the next 2½ feet higher.

A thin stake must be driven into the ground to train the young vine on till it reaches the top wire. Allow no laterals to grow on the young shoot, except two, one on each side as near the first wire as possible. The upright must be tied several times to the stake, for at this stage it is very tender and easily broken by the wind. Never use a hose among vines or young trees without a muzzle, for even with the greatest of care one will sometimes tear off an important arm or branch. Pinch off the upright as soon as it reaches the top wire, then start the upper laterals, allowing the four laterals to grow only 6 feet.

It may take two years to get the four arms, but if every lateral is pinched off as soon as possible it may do this the season it is planted, as mine have often done. About every four years the arms should be renewed. This is done by training a young shoot during the summer for the next year's arm, starting it as near the upright as possible. I would not advise renewing the four arms in one year.

CARE OF THE ARMS.

After the vine is old enough to bear fruit shorten the hanging laterals during the summer. Never permit those on the upper arms to reach the lower ones, as they will make a tangled mess hard to prune. They will also take away strength that should go to perfect the fruit. After frost has set in prune off all unnecessary wood. Most vines have too much bearing wood left on.

The varieties that have given me the best results are Concord, Baden, Niagara, Salem and Moyer. They are vigorous growers and productive. For fertilizers I use barnyard manure, 12 loads to the acre, and about 50 baskets of ashes. Plough the manure under in the spring just as shallow as a plow can he held, and sow the ashes on top and cultivate them in. Cultivate as often as necessary to always keep the soil loose on top. Hoe where the cultivator does not reach so there will be no weeds.

I have had no trouble from insect pests or fungous diseases, as I spray every year about four times with Bordeaux mixture and paris green. Grapes pay me as well as any other variety of fruit.

Best Grapes and Berries to Grow

RESIDENTS of eastern Ontario who are planning to set out grapes or berries this spring will do well to ascertain the varieties that are likely to do the best in their section.

At the Central Canada Experimental Farm, Ottawa, the following kinds have given the best results. In other sections, where the climate corresponds to that at Ottawa, these varieties should do well.

Grapes.—Black varieties, Campbell's Early, Moore's Early, Wilder; red varieties, Moyer, Delaware, Lindley, Brighton; white varieties, Green Mountain, Moore's Diamond.

Strawberries—Buster, P.; Warfield, P.; Enhance, B.; Glen Mary, B.; Beder Wood, B.; Sample, P.; Lovett, B.; Barton's Eclipse, P.; Bisel, P.; Bubach, P.; Williams, B.

Red Raspberries.—Commercial varieties: Marlboro, early; Cuthbert, main crop. For home use—Herbert, Clarke, Sarah.

Black Caps.—Older, Hilborn.

Blackberries.—Agawam, Snyder.

Red Currants—Wilder, Pomona, Cherry, Fay's Prolific.

Black Currants.—Victoria, Success, Standard, Climax. The last three are seedlings originated by Dr. Wm. Saunders.

Spraying the Small Fruit Bushes

PROF. WM. LOCHHEAD, ONT. AGRI. COLLEGE.

WHERE small fruits are being raised at all extensively spraying will frequently prove an excellent investment. Larger and better fruit and more of it will be the result. The following short formulae may prove helpful to some:

RASPBERRY.

Anthracnose, Leaf-Blight and Saw-fly Larvae.—First spraying: Bordeaux mixture and paris green just before growth begins.

Second spraying: Bordeaux mixture and paris green about when first blossoms open.

Third spraying: Bordeaux mixture when the fruit is gathered.

CURRANT AND GOOSEBERRY.

For Worms and Mildew.—First spraying: Potassium sulphide or Bordeaux mixture and paris green before buds expand.

Second spraying: The same 10 to 15 days later.

For worms alone, hellebore or paris green will be effective.

STRAWBERRY.

The Rust or Leaf Blight.—Bordeaux mixture, when it can be applied without disfiguring the fruit, will control this disease. Apply at intervals of two or three weeks on new beds after they begin to make runners.

SHIPPING FRUIT TO THE NORTHWEST

E. D. SMITH, M. P., WINONA, ONT.

ONE of the main requisites for success in shipping fruit to the Northwest is to get good shipping varieties.

In peaches we have nothing until the Elberta is ready. It is as perfect as one can well expect to get a peach, but the tree is defective in that the foliage is weak, being more subject to curl leaf than any variety. Growers are, in consequence, loth to plant it largely.

There is no other variety until the late peaches come on, and they are rather too late. Shippers require four or five Elbertas at different seasons, commencing as early as our earliest and covering the season till Smocks come in. The trees should be perfect as well as the fruit.

In plums we require a kind that will keep well. There is a great difference in the varieties we already have, but even our best are not good enough to compete at all with the long keeping California plums.

Our best sorts are Emerald, Burbank, Purple Egg, Shropshire, Damson, Fillemberg, German Prune and Reine Claude, in order of ripening. These do not cover even half the season of plums, and are not good enough themselves. They are, however, much superior to most sorts for shipping, and are all good plums.

There are no good all round grapes. The Concord is lacking in shipping quality. As they are usually picked a large part of them are split, and these mould on the journey. Even if carefully picked there is sure to be a considerable proportion damaged before they reach the consumers in the Northwest.

ALL HAVE DEFECTS.

The Niagara is similar in shipping qualities. There are good shippers, such as Vergennes, Agawam, Rogers 4, Rogers 43, Rogers 44, and many others, but all have other defects, and so I might go on over all our fruits.

Here is certainly room for a vast amount of experimenting, hybridizing, and efforts in the line of producing new varieties in every way possible. One perfect shipping sort would be worth hundreds of thousands of dollars to Ontario for that great and growing northwest market. The opening is ready for a large experimental fruit farm in the Niagara district and the work cut out for it at once.

Securing Material for Packages.—As yet I have experienced little difficulty obtaining the necessary material for packages in which to market my fruit. I have an idea, however, that it will be well to hold some elm in waiting until my orchard, which is young, gives its first returns of any consequence. I can get the material sawed and make my own barrels in winter. The box is the best package for fruit, but before it will be practical to make them here the labor problem must be solved.—(E. H. Hutton, Easton's Corners, Ont.

Ready to Co-operate.—I have held meetings in 20 places this spring to discuss co-operation in the handling and shipping of fruit, and I think there will be a number of associations formed this season for this purpose. There is nothing that is creating so much interest among farmers and growers as co-operation, and the time is ripe for a great movement in that direction.—(A. E. Sherrington, Walkerton, Ont.

It gives me pleasure to renew my subscription to the Canadian Horticulturist for another year.—(J. B. Bruce, O'Kanagan, B. C.

THE VEGETABLE PATCH IN MAY

SOWING and planting for a succession of vegetables for summer and autumn use will be one of the main features of vegetable gardening for May. A second sowing of peas can be made. The Horsford Market Garden Pea is a good second early variety. These will crop, and can be cleared off in time to plant late celery on the same ground.

Beans of either the dwarf or climbing varieties can be sown at any time from early in May until July, at intervals of two or three weeks as required. Two good kinds of beans for medium and late crops are the Early Valentine and Tabers I. X. L. The latter is one of the best varieties of late beans. It is a strong grower, heavy yielder, and the pods keep fresh and crisp longer during the hot summer months than any other variety I know. The best pole beans are the Asparagus and Kentucky Wonder.

Corn can be sown at any time during May or June. Two good varieties for a small garden are the Early White Cory and the Country Gentleman. Put a seed or two of the Long White Bush Marrow in every alternate hill of corn. This bush growing marrow is in many respects preferable to the English marrow, but does not produce a crop for as long a period of time as the latter variety, which is of a running habit of growth.

The best variety of beet for a small garden is the Dark Egyptian. The long smooth blood beet is best for winter use. For an all season carrot there is none to beat the Chantenay. It is the best flavored carrot grown, comes in fairly early, and is a good cropper.

THE CUCUMBER AND MELON PATCH.

Cucumber and melon seeds can be sown outside toward the end of the month. Plant double the quantity of seed required, as some of the seed may not grow. The plants not wanted can be easily transplanted when the second leaf has developed, or they can be pulled out and thrown away. Four good plants to a hill is sufficient.

A second sowing of lettuce should be made early in May. Nonpareil and Gardeners' Favorite are two good varieties. If you have a nice light piece of fairly rich soil, sow a few turnip rooted or olive shaped radish. The scarlet white tipped and scarlet olive shaped are two of the best kinds. A plate of the first named, fringed with a few lettuce leaves, is not only very appetizing in appearance, but is, from a decorative point of view, quite as effective as a vase of flowers or a plant jardiniere.

(Continued on Page 215.)

CELERY GROWING

H. R. ROWSOME, BURLINGTON, ONT.

NEXT to cauliflower, celery is the most difficult of garden crops to grow and bring to a first class condition for market. It is considered to be a profitable crop to grow because by sitting in an arm chair with pencil and paper one can figure on a profit of $4,000 per acre when grown by irrigation, but practically very few gardeners, one year with another, clear more than $250.

It is the average profit at Kalamazoo, Mich., where 5,000 acres are grown by the hard slugging of a colony of Hollanders, who work their women and children. Many gardeners who have commenced growing this vegetable on a large scale have gradually gone out of it because often the crop is a complete failure. As $200 an acre can easily be thrown away in expenses, the average grower does not want to face a bad year with a large acreage.

Since celery is an acquatic plant it delights in a swamp muck. Some peaty mucks contain a good deal of iron, and it will not grow there. Black sand with a quicksand

subsoil is nearly as good, but will not grow if the subsoil is clay. Other soils will grow celery if enough manure and water are used, but it is too much of a fight against nature to make the culture profitable. At least 40 tons of manure per acre must be applied each year. There must not be any coarse manure near the top of the ground or the plants will die out when set out. Four or five applications of nitrate of soda—100 pounds at a time every ten days or two weeks will hasten growth.

GOOD VARIETIES.

For early fall, summer and early winter use, the following self-branching kinds are used: Paris Golden, Rose Ribbed Paris and White Plume. The Paris Golden is the best; the seed should be grown by the originator in France, as plants from Californian and Chinese grown seed become punky and useless.

For late winter use the red celeries are: London Red, Bruce's Hamilton Red (Nottingham Red in England), must be earthed up often, and Carter's Crimson, which has narrow stalks. Green celeries include several good varieties. The Giant Pascal is brittle and rots at the heart, but its flavor is the best. The Evans' Triumph is soft, but blanches to a beautiful wavy line. It is a great favorite. Perle le Grand much resembles the Triumph. On some muck soils it is very hard, while on other soils it is very punky. Kalamazoo is a perfect celery, with the exception that it rusts. Ewing's Large Ribbed White is much too short and needs lots of earthing up to make it grow compactly.

For early celery, which is being overdone in a limited market, sow thinly in February in a warm greenhouse on raked soil. Pat the earth with the back of a spade and cover with a cloth; water frequently. As soon as the seed commences to come up remove the cloth. When the plants become 2 inches high, prick them out in good hotbeds 2½ or 3 inches apart each way.

NEEDS PROTECTION FOR BEST RESULTS.

Celery grows better if shaded by thin cotton or cheese cloth. These plants are set out in May with as much earth on the roots as possible in rows 3 feet more or less apart and 5½ or 6 inches apart in the rows. The plants should be sorted into two or three sizes, because if a large plant is placed beside a small one, the larger will grow at the expense of the smaller. After the ground has been marked out, a furrow 50 yards or so at a time may be plowed with an improvised plow made out of a skimmer. This makes a furrow just the depth required, and only a short furrow is made at a time because celery must be set out only in fresh moist earth.

Seed for late celery may be sown in the open field about April 20 or 25, with the seed drill as shallow as possible, covered with say a quarter of an inch of soil, in rows one foot apart. The plants appear in 21 days, and ought to be thinned to about 100 to the foot. They will grow much faster if sub-irrigated by tile one foot or so below the surface, and will become stocky if mown with a scythe when 5 or 6 inches high.

(TO BE CONTINUED.)

Mammoth Yellow Spanish or Prizetaker onions should be sown as early in the spring as the ground can be worked, in rows 15 inches apart. Cover the seed with about a ½ inch of earth. When the sprouts are well up, hoe and thin to 2 inches apart. The ground can scarcely be made too rich or worked too much. By using well rotted manure this crop can be grown continuously on the same ground without rotation.—(D. M. Ferry, Windsor, Ont.

How Troubles May Be Prevented

PROF. WM. LOCHHEAD, ONT. AGRI. COLLEGE.

VEGETABLES are often attacked by fungous diseases and insect pests, and unless great care is taken much of the crop will be lost. Many remedies are advocated for most of the more common troubles. The following, if carefully applied, should prove effective:

TOMATOES.

Rot and Blight.—Spray with Bordeaux mixture as soon as rot or blight appears, three times if necessary, at intervals of 10 to 15 days.

POTATOES.

Scab, Blight, and Beetles.—For the scab: Soak the "seed" potatoes or tubers for two hours in a solution of formalin (8 ounces in 15 gallons of water).

For blight and beetles: First spraying: Paris green as soon as the beetles appear (one pound to 100 gallons of water).

Second spraying: Bordeaux mixture and paris green when plants are six inches high.

Third and fourth sprayings: Bordeaux mixture at intervals of 10 to 15 days, if necessary.

Spraying with Bordeaux mixture will prevent the blighting of the plants and the rotting of the tubers.

CELERY.

Leaf Blight.—First spraying: Bordeaux mixture while in the seed bed.

Second spraying: Bordeaux mixture a week after transplanting.

CUCUMBER AND SQUASH.

For the Squash Bug.—Kill the early bugs, and the yellowing eggs on the underside of the leaves; kill the bugs every morning which collect under chips and boards placed near the vines.

For the Striped Cucumber Beetle.—Keep vines well covered with Bordeaux mixture; cleanliness in garden in fall; protect young vines with muslin or cheesecloth netting; insect powder and flour as for cabbage worm; tobacco water and soft soap mixture sprinkled on vines, followed by a dusting of lime.

ASPARAGUS.

For Beetles.—Spray plants after cutting season with paris green; regular cutting of all shoots.

For Rust.—Cut and burn all plants in fall.

CABBAGE.

For Cabbage Worms and Lice.—Pyrethrum applied in solution (1 ounce to 3 gallons of water) or dusted on (1 part pyrethrum to 5 parts flour).

For Cabbage Root Maggots.—No thoroughly reliable remedy is known, but good results have been obtained by using Goff's tarred paper cards. These are pieces of tarred building paper, 3 inches in diameter. In the centre is a hole through which the root of the young cabbage is placed on transplanting. Card lies flat on ground.

The Tomato Plantation

L. W.

EARLY tomatoes for the market are often very profitable. Indeed, the experience of many growers last summer has encouraged them to plant largely. The most desirable variety for early market is the Earliana, which is being grown on a large scale this spring by growers in the Niagara district. The earlier the young plants can be set in the open ground and escape frost the better will be the results. Many gardeners will plant about May 15 or even earlier, and take their chances of a cold spell.

For the factory it is not necessary to plant until June, but even for those plants, it has been found that the early planted give the most pounds of fruit in the season, because at best our season is too short for the plants to reach their full maturity.

The best distance apart is five feet each way, the wide spaces giving room for better

cultivation of the plants, and for walking through the vines in harvesting the crop. If the ground is rich very little barn manure is needed; but, if poor, it should have a liberal application of well rotted manure. Nitrate of soda, applied soon after setting the plants, will bring excellent results, especially if the soil is rich in vegetable matter. Shallow cultivation should commence soon after planting and be continued for at least four or five weeks, until the vines begin to cover the ground.

GINSENG GROWING IN ONTARIO

W. T. MACOUN, CENTRAL EXPERIMENTAL FARM.

Is much ginseng grown in Ontario, and if so, with what success? I am thinking of growing some.—(A Reader.

FOR information regarding the culture of ginseng I would suggest that reader write to the Pennsylvania state college experiment station, State College, Pa., for a bulletin on this subject. There is also a little pamphlet, published a few years ago, called American Ginseng, by the American Ginseng Gardens, Rose Hill, N. Y. This might also be obtained on application.

As a great many persons are becoming interested in the culture of Ginseng I should like to quote from an editorial in the Rural New Yorker of April 2, 1904. This editorial sums up in a reasonable way the prospects from growing ginseng. It reads:

"We have received a number of letters like the following:

"There is getting to be a sort of craze over the raising of ginseng roots in this part of the state. There are big stories of enormous profits going the rounds. If you could get at the truth of the matter from those who have had experience with it, you would confer a great favor upon many who are about to invest in it."

"'Craze' seems a mild term to apply to the way some people talk about this crop. * * * Millions of roots and seeds have been planted, and some of the gardens are looking well. Prices for young plants are very high, and fortunes have been made in selling these plants for transplanting. So far as we can learn very little if any of the cultivated root has been offered for sale. We believe that thus far the trade in ginseng has been almost entirely in plants and seeds intended to start new beds.

"If 20 per cent. of the roots thus sold ever grow large enough for commercial purposes the market will be glutted. Why do we say this? Scientific men find little if any virtue in the ginseng root. * * *

"While the Chinese will for years continue to demand ginseng, we think such demand will inevitably grow less. Should any large proportion of the plants now growing come to marketable size the limited market will be overstocked, with no possible outlet for the surplus. We doubt, however, if many of such plants will be heard from. If we had the money that has been paid for seeds and roots that never grew we could feed a good many thousand poor people. Money and care put into some standard crop will in the long run bring better returns for most people."

Plant cucumbers as early in the spring as danger of frost is over, in holes 5 feet apart each way. Fifteen or 20 seeds should be placed in each hole and covered a ½ inch deep. After danger of bugs and worms is over, thin to four of the strongest plants in a hole. It is desirable to enrich the bottom of the holes with well rotted manure which should be well mixed with the soil.—(D. M. Ferry, Windsor, Ont.

WHAT TO GROW IN THE VEGETABLE GARDEN

IT is often no easy matter, even for the experienced grower, to decide what varieties of vegetables to plant. For the amateur grower the question is a hard one indeed.

There are so many varieties advertised by the seed firms, and their good qualities are so temptingly set forth in the catalogues, the making of a choice of seeds is rendered the more difficult. The following is a list of the varieties which have given the greatest satisfaction in the horticultural department at the Central Experimental Farm, Ottawa:

Asparagus.—Conover's Colossal is the best all-round variety, but this variety is more subject to rust than Palmetto or Argenteuil.

Beans.—Keeney's Rustless Golden Wax or Wardwell's Kidney Wax, for early crop; Early Refugee, for medium; and Refugee or 1,000 to 1, for late crop, are the most satisfactory dwarf varieties. Asparagus, and Lazy Wife and Old Homestead are three of the best pole varieties.

Beets.—Egyptian Turnip, Eclipse and Bastian's Blood Turnip are three of the best varieties.

Cabbage.—Early Jersey Wakefield (early), Succession (medium), Late Flat Dutch, Drumhead Savoy (late), Red Dutch (red), is a select list of the best varieties of cabbage. For extra early use Paris Market is desirable, being a week earlier than Early Jersey Wakefield.

Cauliflowers.—Extra Early Dwarf Erfurt and Early Snowball.

Carrots.—Chantenay is one of the best, but if a good extra sort is required the Early Scarlet Horn can be planted with advantage. It is a small variety.

Onions.—Yellow Globe Danvers and Large Red Wethersfield are two of the best onions in cultivation.

Cucumbers.—Peerless White Spine or White Spine, Cool and Crisp, and Giant Pera are three of the most satisfactory slicing varieties. Boston Pickling is a good pickling sort.

Egg Plant.—New York Improved and Long Purple succeed best.

Lettuce.—Black Seeded Simpson, The Morse, and New York (curled), Improved Salamander, Unrivalled, Tennis Ball. Golden Queen (cabbage). Trianon and Paris Cos lettuce make a good list.

Parsnips.—Hollow Crown and Dobbie's Selected are both good sorts.

Parsley.—Double Curled is as good as any.

Peppers.—Cayenne, Cardinal, Chili and Golden Dawn are four of the best.

Peas.—Gregory's Surprise, Gradus, American Wonder, Premium Gem (early), McLean's Advancer, Nott's New Perfection, Heroine (medium). None of these are tall growing varieties. Stratagem, Juno (dwarf), Telephone (late). Excelsior is a promising second early sort.

Radishes.—Early—Scarlet White-tipped Turnip, Rosy Gem, French Breakfast, Red Rocket (red), Icicle (white). Late—White Strasburg, Long White Vienna. Winter—Long Black Spanish, Chinese Rose-colored.

Rhubarb.—Linnaeus, Victoria.

Salsify.—Long White, Sandwich Island.

Spinach.—Victoria, Thick-leaved.

Squash.—*Early*—White Bush Scalloped, Summer Crook Neck. Late—Hubbard.

Tomatoes.—Early — Sparks' Earliana. Main crop—Brinton's Best, Trophy, Matchless (scarlet), Burpee's Climax, Autocrat (purplish pink). There are many varieties of tomatoes which are almost equal in excellence and productiveness.

Turnips.—Early—Extra Early Milan, Red Top Strap Leaf.

HOW THE FLOWERS LIKE TO BE TREATED

WM. HUNT, ONT. AGRI. COLLEGE.

SEED sowing and transplanting will be the first work in the flower garden. It will be too early until about the second or third week in June to plant out the tender varieties of plants such as Coleus, Achyranthes and Alternantheras, etc.

Hardier flowers, such as carnations, chrysanthemums and even geraniums, can usually be planted out of doors early in May, more especially the two first mentioned. Care must be taken with all kinds of plants, either naturally tender or hardy, never to plant them out in the open ground, whether from the window, greenhouse, or hotbed, without first putting the plants through the hardening-off process. This is done by gradually introducing the plants to the altered conditions of out-door life by exposing them for a few hours a day at first to outdoor conditions.

This can be done by standing the plants out where they can either be lifted indoors again, or where they can have some temporary protection until the growth has become somewhat hardened to the more trying and altered conditions to be found out of doors in early spring time. A cold frame is a good place to harden tender plants in.

Nasturtium, Balsam and Portulacca seed can usually be sown outside with the best chance of success about the second or third week in May. The Cobea scandens, although a purely tropical climber, succeeds splendidly even in the northern parts of the province if not planted in the open until well on in June, when the ground has become thoroughly warmed up and all danger of frost is over.

A few seeds sown in pots early in May and kept in the greenhouse, window or hotbed until the time mentioned for planting them out will make nice plants for planting sometime in June. About three seeds in a three or four-inch pot is the best way to sow them. They will not need re-potting before planting out, as they do not transplant very readily if separated. It is best to plant the whole pot of plants out together, whether there be one, two or three plants in the pot. Use rather light sandy soil to sow the seeds in, and cover them with about a quarter of an inch of soil. Keep the soil in the pot moist, but not soddened with water. Put the pot in a warm sunny place in the window until the seed is up, when a

The Favorite Spring Flowers.

The demand for Easter Lilies this spring was so active, florists in the leading Canadian Cities were unable to fill all their orders. An article on this subject appears in this issue. (Photo by Galbraith Photo Co., Toronto.)

slight shading in the hottest part of the day may be beneficial for a few days.

A SPLENDID CLIMBER.

There is no better annual climber for covering a rockery, trellis work, or fence, than the Cobea Scandens, if given only fairly good treatment. A light rich soil suits it best. The purple flowering variety is the best and strongest growing. The white flowering variety is more delicate.

Rose bushes should be sprinkled with a strong solution of tobacco water as soon as the leaves have developed. or the leaves and stems of the plant can be sprinkled with dry finely powdered cigar dust or raw tobacco leaves dried well and rubbed into fine powder. This should be sprinkled well all over the underneath side of the leaves when the dew is on the foliage. or shortly after a shower of rain. If this is done early in the season and repeated once a week until the flower buds commence to open, the aphis or green fly, or that still greater rose pest the white thrip, can be kept under during the greater part of the season. For the rose worm or rose slug the paris green mixture or dry hellebore powder, used as recommended for the currant bushes, will effectually stop the attacks of these enemies of the rose garden.

If it is necessary to dig up the spring flowering bulbs when they are out of flower so as to set out other plants, the bulbs should be lifted and heeled in just under the ground in some place out of the way until July. The bulbs should then be lifted and kept in a dry cool shed until they are required for planting again in the fall.

SETTING OUT GLADIOLI BULBS.

Gladioli bulbs or corms can usually be planted out about the second week in May. Plant the bulbs about 3 or 4 inches underneath the soil, and about 6 or 8 inches apart, whether they are planted in clumps or in rows. Dig the ground thoroughly before planting. Dahlia roots can be planted out about the same time as the gladioli. A rather rich open soil suits the dahlia best. Put a stake in by the side of the roots when planting them; it will often prevent the growth of the plant from being destroyed by the hoe just as the young shoots appear above the ground.

Canna roots should not be planted outside until the second or third week in June. There is nothing gained by planting them too early. as they must have heat to grow and succeed well. If started indoors, fine sharp sand or very sandy soil placed in shallow boxes 3 inches in depth is a good method of starting them into growth.

Care of Plants from the Florists

JOHN H. DUNLOP, TORONTO, ONT.

WHEN amateur flower growers receive their packages from the dealers they should unpack them at once and ascertain if the plants are dry and inclined to wilt when exposed If so, they should place them in damp moss or other material in a shady place, and allow them to stiffen out before picking out or potting off. Never pot good cuttings inclined to be dry. They will never make thrifty plants.

After plants have been potted they should be thoroughly watered. Syringe the plant to keep it from wilting, shade carefully until growth has started, then remove gradually. Rich soil for cuttings should be avoided. Fresh loam with manure is more desirable, as cuttings are not in a state to take up rich food. When growth has commenced and the plants are stronger they will be benefited by richer food.

FLOWER AND PLANT LORE

EDWARD TYRRELL, TORONTO, ONT.

"THE fascination of plant names has its foundation in two instincts, love of nature and curiosity about language. Plant names are often of the highest antiquity, and more or less common to the whole stream of related nations. Could we penetrate to the original suggestive idea that called forth the name, it would bring valuable information about the first openings of the human mind towards nature, and the merest dream of such a discovery invests with a strange charm the words that could tell, if we could understand, so much of the forgotten infancy of the human race." So wrote Mr. Earl in the preface to his volume on English plant names.

I have found it very interesting and instructive hunting up the history and lore of plants ,and I hope some of the readers of the Horticulturist will find something interesting in the selections I present to them. The Tulip will be in full bloom this month, and therefore the following may be appreciated:

TULIP. TULIPA, OR THE DALMATIAN CAP.

The species are found in the Levant, Armenia, Caucasus, Persia, Central Asia and Afghanistan. This gay flower having been obtained from the Turks, was called Tulipa, from the resemblance of its corolla to the eastern head dress called Tulipan or Turban, and from hence our name of Tulip. The resemblance its shape bears to the turban is thus allueded to by Moore in Lalla Rookh:

> What triumphs crown the rich divan to-day,
> With turbaned heads of every hue and race,
> Bowing before that veiled and awful face,
> Like tulip-beds of different shape and dyes,
> Bending beneath the invisible west wind's sighs.

From time immemorial this flower has been made the emblem by which a young Persian makes a declaration of his love. The tulip was first seen in Europe at Augsburg, in Germany, in 1559, was sent by Busbec, Ambassador from Germany, to the Porte, with the remark that the Turks charged a very high price for it. It was first introduced into England in Elizabeth's time. Gerard fixes it in 1577. It has been crossed and re-crossed till it has been found almost impossible to refer our present plants to their original type. Owing to the great beauties of the flowers they have been favorites for two or three centuries.

In 1630 the tulip came into fame, and from what I can learn no flower ever created such speculation and gambling. In Holland, hundreds gave up their business, sold their houses, land, horses and carriages to buy and sell tulip bulbs, which resulted in the ruin of many who engaged in it. Three thousand dollars was paid for a bulb of Sempert Augustus, $1,000 to $1,200 for a Viceroy, $500 for a Gonda.

In the register of the city of Alkmaer, 1637, is an entry of a sale of tulips for the benefit of the Orphan Hospital, when 120 bulbs were sold for 9,000 florins, and one of them, the Viceroy, brought 4,203 florins, the sale realizing in sterling £1,314. It must be remembered that this Tulipomanio of the 17th century was really a form of gambling, in which the admiration of the flower and interest in its culture were secondary matters. The Dutch government at last issued a proclamation to suppress this ruinous excess by the votaries of Flora.

I plant my grape vines 10 feet apart each way, This gives me plenty of room to cultivate them with a team and gather the crop. I prefer trellising with two wires, the Kniffen system, a post for every three vines, leaving the arms not more than 2½ to 3 inches long.—(Aaron Cole, St. Catharines, Ont.

Easter Flower Trade Was Brisk

THE Easter flower trade this spring was unusually brisk in all the leading Canadian cities. The floral decorations in many of the churches were exceptionally elaborate. To this fact was largely due the actual scarcity of plants which existed in some centers. An improvement was also noticeable in the retail demand for home decorative purposes. Many families made pretty displays, particularly of lilies, in their front windows while the season lasted.

In Hamilton there was a scarcity of lilies for some time owing to a disease which attacked many plants. A number of florists were forced to fill their orders through Toronto houses. The Townsend Estate reports that lilies, which in ordinary years would only be worth about 75 cents, sold for as high as $2 each.

The Ottawa florists, practically without exception, announce their sales this year were the largest on record. When seen, Graham Bros. said they were well satisfied with the Easter business and had sold out completely their stock of Easter lilies. Mr. R. H. Wright remarked: "I never saw trade better. It seemed to me that every one was buying flowers."

TORONTO SALES WERE BRISK.

The Easter demand for flowers in Toronto, according to the well known florist, Mr. E. Grainger, was a great deal better this year than ever before, especially in Easter lilies, which were much lower in price than last year. This was on account of one or two florists, who ordered a large stock before Easter. That they might be sure no stock would be left on their hands they were obliged to lower their prices to dispose of stock. Blooms usually selling for 10 to 12 cents sold for 5 to 8 and 10 cents. Poor ones sold for 5 cents.

By Easter time these were all gone, and retailers advanced their prices for good blooms. Large stores, such as Eaton's and Simpson's, kept up their prices, and by Easter Saturday there was a great scarcity of Easter lilies.

A great many more azaleas were sold than ever before and at the lowest prices ever known in Toronto. Messrs. Wm. Jay & Son reported flowers for the Easter trade never sold so well as this year. Roses and lilies take the preference, with violets next. Prices were about the same as last year. azaleas, hydrangeas and lily plants were all in good demand.

Boston Ivy on Painted Wall

PROF. H. L. HUTT, ONT. AGRI. COLLEGE.

Will you kindly let me know if the Boston Ivy (Ampelopsis Veitchii) will cling to a brick wall after it has been painted ?—M. B., Ont.

I think you will find it will cling to the painted brick wall nearly, if not quite, as well as where it is unpainted.

Good for the C. P. R.—A leaflet has been sent to all station agents of the Canadian Pacific Railway system by the flower department, giving instructions regarding the planting and care of flowers and the artistic decoration of gardens and garden plots. To assist in the work the agent is supplied with about 20 different varieties of flower seeds. Practical instructions for planting are also given. The flower department urges the agent to make his house or station the prettiest place in town.

Do not plant beans until the ground is dry, the weather warm, and all danger of frost is over. Light rich soil should be selected and the beans be planted in drills 1½ to 2 feet apart. Plant them 3 or 4 inches apart and cover 2 inches deep. If planted in hills, make the holes 1½ to 2 feet apart one way and 2 to 2½ feet the other, and plant 6 or 8 beans in a hole. Hoe them, but only when the leaves are dry.—(D. M. Ferry, Windsor, Ont.

THE VEGETABLE PATCH IN MAY

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

A sowing of white mustard for salads can be made now. Sow the seed quite thick in drills half an inch in depth. Cut for table when the second tier of leaves has developed. Sowings of this delicious table relish are not advisable after May 15. As soon as the seed onions are about six inches in height, give them a good sprinkling of dry dusty soot or wood ashes, or both mixed together. Sprinkle this on very early in the morning when the dew is still on the plants, so that it will stick well to the growth. Put on directly after a shower will answer as well. If this dusting process is done thoroughly about once a week until July you will not be troubled with the onion maggot, as the fly that produces that maggot will not go near the plants if they are thoroughly dusted. A half pound of powdered sulphur thoroughly mixed with a pailful of dry soot or ashes will also help to prevent the onion mildew that has been so prevalent and so destructive to onions the last season or two.

CABBAGE AND CAULIFLOWER.

A few plants of the early variety of cabbage should be planted now. The Jersey Wakefield and the Early Winningstadt are good. Early cauliflower should also be planted at once; these, however, are a very uncertain summer crop in most seasons. Early Erfurt or the Snowball are the two best kinds. Early cauliflower requires a deep, rich, moist soil to grow well in. They are also much benefitted by a mulch of partially rotted strawy stable manure, spread an inch or two in thickness on the ground around the plants. This mulch should be applied as soon as the hot dry weather sets in. Lawn grass cuttings make a very good mulch to retain moisture, but has very little fertilizing property in it. Manure makes the best mulch for cauliflower.

If you wish to raise your own cabbage and cauliflower plants for late crops the seed should be sown early in May on a piece of fairly rich light garden soil. A square yard would raise several hundred plants. Sow the seed rather thinly in drills nearly an inch in depth and six or eight inches apart. The best varieties are Erfurt and Snowball cauliflower and All Season's autumn cabbage and Savoys. These latter are of a very hardy nature, and are at their best after being exposed to a sharp frost of eight or ten degrees. In favorable seasons I have cut splendid heads of these well on into December from the open ground.

The Savoy cabbage has not that rank, strong flavor that makes the common flathead cabbage so disagreeable and objectionable to vegetable lovers. In England and all parts of northern Europe the Savoy cabbage ranks close, and is often preferred to the popular Brussels sprouts. that is considered to be *par excellence* in this class of vegetables by connoisseurs. In point of quality the Dwarf Ulm and Victoria Savoy rank first. The Savoy cabbage should be more universally grown than it is, more especially when grown for one's own use. If quantity more than quality is desired, the drumhead Savoys are just as heavy yielders, and will keep as well or better than the common flathead winter cabbage.

Surface-stir and cultivate the soil well around all growing crops. It kills all weeds out almost before they start to grow, and assists plant growth in a marked degree.

PROMISING METHOD OF CO-OPERATION

ROBERT THOMPSON, PRES. ST. CATHARINES COLD STORAGE AND FORWARDING CO.

A NUMBER of the fruit growers in the vicinity of St. Catharines have been endeavoring to improve the present system of shipping fruit. A committee was appointed last winter to work out a system that all would have faith in, and which would enable us to work harmoniously together. We have agreed to adopt the following plan for the coming season:

The charter of the St. Catharines Cold Storage and Forwarding Company, to which we belong, allows us to buy and sell fruit and produce, as well as store and ship. Our plant has cost us $8,000, on which there is a debt of about $2,000. We had a surplus over running expenses the past season, after paying interest charges, of over $500, so that our organization is in good shape except that there is not enough capital subscribed.

In the past, members received no more benefits than outsiders. In the future this will be changed. We propose that a member to receive the full benefit must hold five shares worth $50. A member holding three shares, or $30, will receive half benefit.

WILL BUY SUPPLIES WHOLESALE.

The company will purchase supplies wholesale, such as baskets, barrels, apple boxes, bluestone, sulphur, and anything that is wanted in large quantities, as well as spray pumps and fertilizers. Members will be supplied at cost, outsiders at an advance.

Fruit will be sold whenever practical. As many growers as possible will be urged to fill orders. The company will purchase, if necessary, to fill orders. Members' fruit will always be given the preference. Outsiders will be charged a percentage for selling their fruit.

A system of inspection of members' fruit by a disinterested party, will be established. In all packages that pass as high grade an attractive company label will be placed. These will state the packages are guaranteed by the company, and requests purchasers to communicate direct with the company for further supplies of this same brand, and to write giving suggestions as to any improvements that can be made in the package or method of packing. All such packages will bear the packer's or grower's name.

POINTS THAT WILL BE WATCHED.

Shipments will be confined to as few as possible of the leading commission houses in the larger cities when fruit is sent on consignments. An effort will be made to ship as far as practical by freight. In the apple season a competent man will be engaged and placed in charge of packers to pack the fruit of members.

These are a few of the methods we believe will help the growers of the district. Already we have purchased three carloads (500,000) berry boxes and crates, and thirteen spray pumps, and we are negotiating for a ton of bluestone.

Planting Strawberries.—I prefer to set strawberry plants in rows 4 feet wide, as they are more easily cultivated. Experience has shown that with a row 18 or 20 inches wide the pickers do not have any too much room in which to work in the middles. It is not necessary to set plants 12 to 18 inches in the row, as advised by many people who sell them. They should be set so that the crown is just above the level of the ground. If set too deep the dirt will smother the crown; if too shallow, the sunshine and wind will dry the roots, and when the hot days of July and August come the plants die or fail to grow properly.—(Charles H. Snow, Cummings Bridge, Ont.

Marketing Vegetables

"IF vegetable growers fully realized the difference in profit between marketing their vegetables in a neat and attractive manner as compared with careless methods, more attention would be paid by them to the appearance of their produce. This difference," said Mr. Dawson, the well-known commission merchant of Toronto, to the Horticulturist a few days ago, "often means the difference between profit and loss on the goods.

"When I have some nicely cleaned and neatly done up vegetables, and some that have been marketed in a dirty condition and careless manner, the former are nearly always sold before the latter are even looked at, and generally bring a better price, although they may not be any better in quality.

"Radishes should be marketed in small packages, as they are easier to sell. When we have to divide the fruit up into small packages before selling them injury often results. Rhubarb can be sold in almost any kind of package as long as it is not cumbersome.

"As regards the neatness of package, one man will often sell 20 dozen radishes for 5c. a dozen more than another man can get for his radishes, which are not in as neat a condition. Early onions, as soon as they get big enough, will be in demand this year, as old onions are well cleaned out."

Prospects for the Currant Crop

L. W.

THE currant has not been popular of late with commercial fruit growers, because of the low prices received; yet why such prices should continue is hard to understand when the many uses to which this fruit may be put are realized and its excellent influence upon the health considered. What is more agreeable in summer than the mild acid of a currant pie, or what greater delicacy is there than the rich delicious jelly made from this fruit?

At one time no fruit was more profitable, and immense plantations were set, resulting in over-production and a rapid decline in prices. Now that so many have become discouraged with currant culture and have torn out their plantations a decided advance in price may be expected.

Opening For Our Fruit.—Mr. A. Cabaret, 8 Rue Aubroit, Paris, France, writes the Fruit Division, Ottawa, that "In years like 1903, when French fruits were very scarce, the amount of business done between France and California was very large. This might have been done as well with Canada, the sympathy being greater between the countries."

Wants to Buy Apples.—An English wholesale fruit dealer writes the Fruit Division, Ottawa, that he is desirous of importing Canadian apples next fall, and asks to be put in communication with reliable shippers who would make consignments against pre-arranged advances. He would prefer to do business only with those who export their selected fruit in layer boxes. His address and further information may be had on application to Mr. W. A. MacKinnon, chief of Fruit Division.

I do not consider the raspberry crop a paying one for the average farmer. The bushes require many hands at a time when much help is needed elsewhere on the farm.—(D. Bettschen, Violet Hill, Ont.

There is no doubt in my mind that money is to be made in fruit, provided we do four things, and do them right: Spray, prune, feed and cultivate.—(W. O. Burgess, Queenston, Ont.

The Fruit Division, Ottawa, received about the middle of April from Mr. C. L. Stephens, of Orillia, a basket of very fine Salome apples. These had been stored in a cellar all winter, but were in perfect condition, although the Salome is generally considered an early winter apple.

I think there can be no question as to the front in growing apples if the orchard is properly looked after. On our farm there are a few Mackintosh Reds, planted 7 years ago this spring, that gave us over 2 barrels to the tree last fall. We have good local markets and are not far from Ottawa. Should this market fail, I fancy it will be some time before the British market will be glutted with the right quality of apples.—(G. H. Hutton, Easton's Corners, Ont.

I have taken the Horticulturist 15 years and would not like to be without it.—(Walter M. Turnbull, Galt, Ont.

The Canadian Horticulturist

The Leading Horticulturist Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance, entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share in its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Postoffice or Money Express Order, or Registered Letter. Postage stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive the Horticulturist until the publishers are notified by letter to discontinue when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in Towns and Cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

THE CANADIAN HORTICULTURIST.

The general horticultural interests of the Dominion have made wonderful progress during the past few years. Desiring to keep in line with this advancement, the directors of the Ontario Fruit Growers' Association have arranged to considerably improve The Canadian Horticulturist. Starting with this issue a number of new departments have been added. The various subjects treated have been grouped under their respective headings. Sections have been reserved for articles pertaining to the orchard, small fruits, the vegetable garden, editorials and other matters of interest to our readers.

Spraying, being the most important work engaging the attention of fruit growers at this season, has been given special prominence. Several pages have been set aside for articles dealing with what may be called the business side of fruit growing. The first of a series of crop reports is published. It is hoped these reports, which are to appear monthly, will be of direct value to all fruit growers. Several pages have been devoted to the work of the horticultural societies. If these innovations meet with the approval of our readers other improvements will be made in the near future. Write and let us know what you think of them and what more you would like. Help us to make The Canadian Horticulturist the best horticultural paper on the continent.

Fruit growers generally are rapidly coming to the point where they will realize that future success depends on co-operation. No subject aroused greater interest at the recent series of institute meetings held throughout Ontario. So much were the growers at some of the meetings impressed with the advantages of co-operation, as set forth by the speakers, several co-operative associations have since been formed. With careful management growers, by co-operation, can reduce the cost of spraying their orchards, obtain supplies at lower values, have their fruit properly graded and safely stored in suitable warehouses and secure better shipping rates from the railways and express companies. Leading growers have already done this. More should. Those who do not need expect but little sympathy next fall if their apples are left to freeze in their orchards or the railways swallow up all their expected profits by excessive rates. Some excellent co-operative suggestions are contained in the article in this issue by Mr. R. Thompson, of St. Catharines. They are well worth reading and should not be missed.

It is to be regretted that more of our schools, both urban and rural, do not observe arbor day. The setting apart each year of a day or portion of a day for the planting of trees, shrubs and plants must have a very beneficial effect on the little people. Once they are interested in watching the growth of plants and trees they have had a share in setting, few of them will ever wantonly destroy such afterwards. It cannot be denied many of our schools would be the better were their barrenness relieved by a few rows of shade trees and small flower plots. Apparently but few schools observe the day. Over fifty school inspectors and principals of model schools were written to by The Horticulturist during April and asked what work of this nature their scholars have done in the past and what their plans are for this year. Three replied, only one of whom was able to report progress. Why is this thus? Does it not afford an opportunity for good work on the part of our horticultural societies?

The statement of grievances prepared last month on behalf of the fruit growers, and which has been laid before the railway commission, should have a beneficial effect. It was carefully drawn up, the charges of discrimination and unfair rates on the part of the railways were specific and uncontrovertable, the importance of the interests affected was clearly set forth, and it was signed by some of our most representative growers. It is the commission's turn to move.

Nothing is more indicative of the improvement that is taking place in the methods of the average fruit grower than the increased interest manifest this spring in spraying. Wherever a few growers gather it is generally the chief subject of discussion. Lack of spraying in the past has taught some salutary lessons. The effect is now apparent. In many districts more than

twice as many orchards will be sprayed this year as last. The great demand for information on this subject is the reason for so much space being devoted to it in this issue.

The farm places in the vicinity of Renfrew should show considerable improvement in appearance if their owners will adopt the suggestions recently made by the Renfrew Mercury. The Mercury urges the farmers of the country, and also residents of the town of Renfrew, to plant trees on the road sides and residential streets, to paint old buildings and barns, to remove unsightly fences, and to place the names of the farms in some prominent position near the house. To assist in the work, the Mercury offers to furnish trees at a greatly reduced cost, also sign plates for the farmers who desire to name their farms. This is enterprise in a good cause. Were more of our local papers to show the same public spirit much good might be done.

In several States of the Union a strong agitation has been in progress for some months back looking for the enactment of legislation that will tend toward a reduction in the number, if not the extermination, of robins. The charge against the red breasted gentleman and his mate is that they are very destructive in the cherry orchards. Their chances for life in one or two of the States do not appear bright.

To ascertain the feeling on this point of our Canadian growers The Horticulturist wrote last month to a number of representative men. Almost without exception they have replied strongly in favor of Mr. Robin. While they admit he sometimes does considerable damage they also claim he does much more good. The replies are interesting, and will be published in the June Horticulturist. Lack of space prevented their appearance this month.

It seems to me that The Horticulturist is improving all the time. I get much help from it. The Editor's answer to my inquiry regarding the planting of trees in last month's issue was most satisfactory. The illustrations such as appeared in The Horticulturist in the April issue, showing the methods of pruning raspberries, speak louder than words.—(A. C. Abbott, Hudson Heights, Que.

In the April issue of the Horticulturist an article appears entitled Apples Frosted and Smoked. The matter for this article was sent out by Mr. W. A. MacKinnon, chief of the fruit division at Ottawa last January. It was intended for an early issue of the Horticulturist, but being crowded out was used by mistake in the April issue.

A firm in Ireland has written the Fruit Division, Ottawa, through the agent at Birmingham, Eng., stating it is prepared to engage with Canadian apple shippers for shipments during the coming season.

Of General Interest

I cultivate about half an acre of raspberries and prefer the Cuthbert variety. It is hardy, stands the winter well, is very productive, has a good flavor and sells well.—(D. Bettschen, Violet Hill, Ont.

I consider the Northern Spy, King and Russett the best kind of apple trees to grow in the Georgian Bay section. We are too far north apparently for Baldwins. A good many of mine have died after being planted 6 or 7 years, and I replaced them with Spys. —(A. Shaw, Walkerton, Ont.

Our raspberry plants have been badly broken down by the weight of snow, but otherwise plants seem to have come through the winter in good condition.—(A. E. Sherrington, Walkerton, Ont.

Observing Arbor Day.—It has been the custom in the schools of this town for some years to observe Arbor Day by cleaning up the school grounds, planting trees wherever such were required for shading purposes, and filling up vacancies in the rows of trees surrounding the grounds. Flower beds, where possible, have been prepared and planted. Our exercises this year will, I expect, partake of this nature.—(J. A. Brown, Principal Model School, Whitby, Ont.

Set strawberry plants as early in the spring as the ground will permit. Personally I prefer early May seeding. Its chief advantage lies in the fact that at this time the plant has not started to grow, and no vitality is lost in the transfer. Plants left in the ground until the end of May, have started to grow, and transplanting checks their growth for a while. They can, however, be successfully set any time before the fruit is formed on them.—(Charles H. Snow, Cummings Bridge, Ont.

SPLENDID WORK IN TILLSONBURG.

After considerable trouble members of the Tillsonburg Horticultural Society have secured from the town council the use of the greater part of Grand Avenue Park in the centre of the town and are having it laid out in 30 plots. The land was first reclaimed and properly prepared for the use of selected male pupils from the public school. Each pupil will have 1 package of Aster seed and a proper number of Gladioli; also 4 packages of garden seeds. These plots are to be cultivated by the children under the supervision of a gardener under the control of the society.

In order to inoculate the townspeople generally, the society will distribute 300 or 400 packages of flower and garden seeds, mostly vegetables, to families of the public school children. These seeds will be grown at their own homes and the work inspected from time to time by committees of the society. An exhibition of results will be held in due season, awards made and prizes given. We had a delightful lecture this spring by Mr. T. H. Race.—(W. W. Livingstone, sec. Tillsonburg Hort'l Soc.

A GOOD WAY TO SECURE MEMBERS.

Members of the Perth Horticultural Society meet the first Monday in every month. Notice is given in the local papers and the meetings are well attended. Some member or members of the society deliver a short address at these meetings. In other cases papers are prepared and read. In all cases the address or prepared paper is the basis of discussion, and in this way many valuable hints are brought forth.

This year a soliciting committee was formed, each member was allotted a portion of the town, and in this way many new names were brought in, while all of the former year's membership was retained. The experiment proved such a success it has become a fixture. A spring and autumn distribution of bulbs and plants takes place every year. This year a lecture was given by Dr. James Fletcher, L.L.D., of the Central Experimental Farm, Ottawa. In the afternoon he addressed the school children on "The Mr. J. O. McCulloch, Hamilton. We expect to a public address on "Spring work for the gardener." Both lectures were given in the town hall, and from the attendance at both it was readily seen that the people of the town and surrounding country were taking a lively interest in horticulture.—(C. J. Foy. sec. Perth Hort'l soc.

HAMILTON BRIGHTENED UP.

Our meetings have usually been held during the winter season, with informal gatherings held at the members' grounds in summer. During the past year we have had addresses from Prof. F. T. Shutt, Dr. Jas. Fletcher, and Prof. W. T. Macoun, of the Central Experimental Farm, Ottawa; Prof. Hutt, O. A. C., Guelph, and opening of spring," and in the evening he gave have Dr. Saunders, from Ottawa, shortly.

For several years we have distributed a large number of plants and packages of seeds to the children of the public and separate schools in the spring, holding an exhibition in the fall, when prizes, not cash, were awarded to the pupils, and also for the best display from any one school. A number of prizes have been given for the best kept gardens, rockeries and window boxes. These awards have had considerable influence in brightening up the appearance of the city.—(J. M. Dickson, sec. Hamilton Hort'l Soc.

INTERESTING SUBJECTS.

The program for the year of the Owen Sound Horticultural society provides for the consideration each month of interesting subjects. It is as follows: April, Lawns, how to make and keep them; May, Bees, Suggestions how to prepare a flower bed; June, Plums and their enemies and how to get rid of them, Small fruits and their enemies and how to get rid of them; July, What to do with house plants now, Domestic Science, How to prepare for Camping; October, How best to take care of fall bulbs and how to keep others over winter; November, Timely points on winter house plants, Domestic Science; December, How to use a few flowers to best advantage for Christmas decorations. The meeting this spring, addressed by Mr. Hunt, of the Ontario Agricultural College, was greatly enjoyed.—(Lou A. Harrison, sec. Owen Sound Hort'l Soc.

PANSY AND ROSE SHOWS.

An early commencement was made by the Toronto Horticultural Society in laying out plans for the year. Mr. C. C. James, Deputy Minister of Agriculture, gave an address in February on "Fruit, and the Fruit District of Ontario," which was much appreciated.

A Pansy show is to be held this month, and the second annual show of hardy and other roses and flowers in season will take place the latter part of June. It should be extra good this year. Entries from friends outside the city will be welcomed. The society desires to see a great development in rose growing. In July or August a Sweet Pea show will be held. During 1903 the society made marked advancement both in membership and work.—(Edward Tyrrell, pres. Toronto Hort'l Soc.

MAY HOLD A FLOWER SHOW.

In the spring of each year we distribute among our members fruit trees, plants, shrubs, bulbs, etc. For the last two years we have given each fall a grant of $10 to the agricultural society to be applied to the flower prize list. The society has allowed us to revise and make out the flower prize list to suit ourselves.

Every fall we give each member a few winter flowering bulbs. For the coming summer we have not decided whether we shall hold a flower show or join with the agricultural society.—(C. W. Schierholtz. sec. Elmira Hort'l Soc.

A BIG IMPROVEMENT IN THE TOWN.

After the organization of the Cayuga Horticultural Society for the first time in the history of the county public gardens were made in the town and Court House parks. The high and public schools were aided in their zealous efforts. This year, in co-operation with the town council, the town park is being completed. The result will be quite remarkable, in fact, a distinct transformation.

Next year we will drop into normal conditions, our public work having been performed. The ordinary member will receive as an incentive to home work the bonus we are able to give in plants. We have given nothing in prizes. Our funds have been given entirely to the public improvement of the town.—(F. G. Lishman, sec. Cayuga Hort'l Soc.

IMPROVED HIGH SCHOOL GROUNDS.

The Port Hope society has for a number of years distributed amongst its members plants, flowers, bulbs, etc. It has also materially assisted in adorning and beautifying the high school grounds. Last spring the school received 350 Gladiolus bulbs, and in the fall some 250 Tulips were planted in a large bed directly in front of the main entrance.

Money has been granted by the society which will be used to further improve the school grounds this spring. Since the government reduced our grant we have not been able to do as much civic improvement as we would wish.—(J. G. Jackson, sec. Port Huron Hort'l Soc.

CHILDREN GIVEN SEEDS.

At the spring meeting of the St. Catharines society, when Mr. T. H. Race addressed us, we held a flower competition of house plants which aroused greater interest in our society among the citizens. In June and September there will be further flower and fruit shows.

With the double object of beautifying the city and creating an interest in horticultural work, fine Aster seeds have been distributed gratis to the different schools, the blooms to be shown at the September meeting. The scholars of each school compete for prizes offered in that school only. Later prizes of Cannas will be offered for the best four large collections of Asters, for which all the schools will compete. Big beds of Cannas will thus be grown in the school grounds.—(S. Richardson, sec. St. Catharines Hort'l Soc.

NEED ORGANIZATION.

Hagersville Horticultural Society is having a hard experience, needing proper organization and more interest on the part of members. This year we will continue our usual distribution of premiums.—(S. M. Howard, sec. Hagersville Hoht'l Soc.

A fruit growers' association has been formed at Goderich with Mr. D. F. Hamlink as secretary.

FRUIT GROWERS WILL CO-OPERATE.

Whitby fruit growers have held a number of meetings lately and formed a co-operative association. A constitution and by-laws were adopted April 16. The constitution announces that the organization shall be called "The Fruit Growers' Union of Whitby," and that it shall be composed of fruit growers living in the vicinity who shall pay a membership fee of 25 cents per year. The expressed object of the union is the improvement of the methods of packing and marketing fruit.

It is intended to accomplish this through co-operation in the buying, packing and marketing of the fruit in the most economical manner possible. By-law No. 3 provides that the members who sign the by-law shall be liable unless they have notified the secretary previously in a manner set forth in another clause to pay the treasurer 5 cents a barrel or 2 cents a box on No. 1 or No. 2 apples which they dispose of through the union.

MANY QUESTIONS ASKED.

The members of the Midland Horticultural society greatly enjoyed the lecture of Mr. Wm. Hunt, of the O. A. C., at a meeting held there this spring. The manner in which he illustrated from natural specimens the different methods of propagating plants was much appreciated.

The question box was a feature of the evening. Slips of paper were distributed at the lecturer's request before the meeting commenced, and a general invitation was given to those present to ask lots of questions. Some 25 written questions on almost all phases of horticulture and floriculture were handed the lecturer at the close of his address. All were answered satisfactorily and promptly.

In the afternoon Mr. Hunt visited the East and West ward schools, where about 500 of the more advanced scholars were addressed. At his suggestion our society will distribute a packet of flower seeds to the scholars to grow at home. The results will be exhibited at a flower show to be held in the summer.—(Frank Cook, Pres. Midland Hort'l Soc.

Improving Their Homes.—Our members will this year be given trees, plants, etc., to the value of 75c., in order to encourage them to beautify their homes and thus greatly add to the general appearance of the town. We were recently favored with the presence of Mr. Race, and his address was highly appreciated.—(J. Thos. Murphy, sec. Simcoe Hort'l Soc.

Allenford Fruit Growers.—At a meeting of fruit growers held at Allenford recently, a fruit growers' association was formed, with James Rushton, of Elsinore, president; Thomas Askin, Allenford, vice-president; Mr. Scarrow, secretary treasurer; directors, Wm. Evans, C. Dorman, D. MacKinnon, Peter Stuart, I. L. Broadfoot and Charles Arnott, all of Allenford.

LADY MINTO'S GARDEN COMPETITION.

For several years Lady Minto has offered prizes for the best kept gardens in the city of Ottawa. The results of the competition held last year have been recently made known. In the first class the successful competitors will be given an engraved certificate signed by Her Excellency and the judges. A silver medal will be given to each competitor scoring 180 points, or 75 per cent of the number obtainable.

The winners in the first class were: W. G. Black, Alex. Lumsden, Lady Aylmer, James Hagan, Mrs. Peter Whelan, G. A. White, James Thorn, J. E. Northwood, C. C. Cummings and S. Short. In the second class the competitors who secured 60 per cent. will also receive an engraved certificate and a cash prize. They were: J. H. Bennett, W. G. Smith, J. G. Gibson, H. A. Scott and C. A. Parker. The judges were Mayor J. A. Ellis, Prof. W. T. Macoun and Mr. R. B. Whyte. There will be no competition this year owing probably to the fact that Their Excellencies are leaving. The competitions are believed to have done great good.

FALL FRUIT AND FLOWER SHOW.

A joint meeting of representatives of the Toronto Horticultural society, Toronto Florists' and Gardeners' Association, Toronto Electoral District society, and representatives of the Ontario Fruit growers' association, was held in Toronto April 19, to make arrangements for the joint fruit, flower and honey show planned to be held in Toronto next November.

The representatives present were Messrs. J. H. Dunlop, Thos. Manton, John Chambers, for the Gardeners' and Florists' association; E. Tyrrell, E. F. Collins, of the Toronto Horticultural society; W. G. Rook, J. McP. Ross and E. F. Collins, of the Electoral District society, and H. B. Cowan, representing the Fruit Growers' association. A rough estimate of the expenses of holding the show placed it at about $2,500, including prize lists for the floral department, but not for the fruit. The show will probably be held in the Granite street rink, as it will be impossible to obtain the armouries. A meeting will be held in a few days, when arrangements for the show will be rushed. It is intended to make it a big affair.

East Lambton Fruit Growers.—At a meeting of fruit growers held at Arkona, April 11, a fruit growers' association was formed, with Philip Austin, president; Geo. Gott, vice-president; W. J. Seymour, secretary-treasurer, all of Arkona; directors, David Johnston, Thomas Riggs, of Arkona; W. A. Hodgson, of Forest; J. W. Johnston, of Sylvan; David Simmons, Donald Johnston, of Forest. The association starts with a list of 27 members.

We find The Canadian Horticulturist a valuable advertising medium, circulating largely as it does among those who take an interest in the cultivation of flowers.—(Campbell Brothers, Nurserymen and Florists, Simcoe, Ont.)

Diplomas Will be Given.—The board of directors of the Toronto Horticultural society have, subject to the approval of the society, decided to award diplomas to those who take an interest in making the surroundings of their places of business, etc., attractive with plants and flowers or well-kept lawns. The diplomas will be determined by the report of a special committee who will make it their business to ascertain who are entitled to them. The diploma is of handsome design, lithographed in five colors, and while the aggregate expense to the society in distributing them will be considerable, it is felt that in awarding it the society will have nothing to be ashamed of.—(Charles E. Chambers, sec. Toronto Hort'l Soc.

Ottawa Society Active.—Arrangements have been made by the Ottawa Horticultural society for an exhibition on May 10. Prizes will be offered for exhibits of Pansies, Narcissus, Hyacinths, Tulips, Herbaceous Perennial Blooms, Geraniums, rhubarb, asparagus, lettuce and radishes. There will be a prize for Tulips, given by Prof. C. E. Saunders, of the Central Experimental Farm. Exhibitions will also be held in June, July and August, and two in September.

Our society has bought 200 plants to distribute among the school children, with instructions that the plants will be exhibited in the fall, when prizes will be given for the best kept plants.—(E. Gurney. sec. Hort'l Society. Hespeler, Ont.

Grimsby Horticultural Society has a good program for May, June and July, and it is expected that the meetings will be largely attended.—(J. W. Brennan, sec.

We know our advertisement in The Canadian Horticulturist is read and appreciated by our many customers in Canada.—(Flansburg & Pierson, Leslie, Mich.

Traceless Harness.—Fruit growers report the Baker Traceless Harness, manufactured by the B. F. Baker Company, Burnt Hills, New York, is a success. It is adapted to work on the plow, harrow, cultivator, scraper, log hauling, the stone boat, and all kinds of low down farm work. It is light, strong, does not gall or chafe, and allows the utmost freedom of the horse. To the fruit grower this harness is very convenient. It eliminates the barking and skinning of trees, as it has neither traces nor singletrees. A harness which enables growers to cultivate close up to trees without interference of single tree or tug, and with absolutely no danger to the trees is a boon. Many users who have once tried it feel that they could not possibly go back to traces and singletrees again. The catalogue issued by the manufacturer illustrates and describes the harness fully. A card will bring it, with all particulars.

FRUIT PROSPECTS THROUGH THE PROVINCE

Although the winter has been the most severe on record, the damage to orchards in the commercial fruit growing districts does not appear to have been as severe as at first feared. Peaches in many sections have suffered severely, some growers having lost their entire orchards. On the other hand, the buds in many orchards are reported to be in a promising condition, with prospects for a fair crop. The damage has been sufficiently heavy to make it certain the crop will not be a large one. Should further damage occur, it is possible the yield this year will be quite small. The plum, pear and apple orchards are generally considered to be in a pretty fair condition, in spite of some injury by mice and frost.

Mice have caused more damage this season than for many years. In some districts orchards have been almost entirely destroyed by them, although the total injury will not materially affect the crop of the province in any line of fruit. The Horticulturist had hoped to give in this issue a detailed statement of the fruit prospects of all the leading crops in the principal fruit producing counties of the province. It has, however, been unable as yet to complete its list of correspondents in the various counties, with the result that the returns for this month's report have not been as complete as it was hoped they would be. For this reason no definite conclusions have been drawn concerning present conditions. The statements of the correspondents have, instead, been given in considerable detail, so that growers will be able to draw their own conclusions. During the summer months the Horticulturist hopes to be able to give its readers complete and accurate reports concerning all the principal fruit crops.

But Few Plum Trees Being Planted.

The great majority of plum orchards are apparently in very fair condition, although in some sections the severe winter caused heavy damage. Most of the correspondents of the Horticulturist made out their reports during the week ending April 23, at which time they claimed it was too early to state definitely just what the injury to trees would amount to.

One correspondent in Lambton county placed the number of trees killed by frost at 25 per cent., while several in Lincoln county, without making any definite estimate, state trees have come through the winter in very poor condition, many of them being badly frozen. In the northwest and central counties trees are said to be in fair to excellent condition. Quite a little damage occurred in Whitby township, Ontario county, where one man reports losing 200 trees.

Mice have done more damage than for many years past. In a number of sections the crop will be materially affected through their ravages, although the total crop of the province will hardly be affected by this cause. In a number of cases correspondents state mice have caused no damage at all to orchards, while others state 40 per cent. of the young trees have been destroyed. It seems safe to state that the comparative number of trees in the province injured by mice will be very small.

The heavy crop and low prices last year has apparently affected the amount of planting which will be done this season. Out of the many correspondents heard from not one reports any new orchards being set out. Growers apparently were greatly discouraged by the returns from their crops last year.

On the whole, more spraying is contemplated this season than last, although the number of growers who intend to spray, compared with those who do not, is very small. While more spraying will be done than formerly in most sections, in many districts no spraying is likely to be done at all. One correspondent states that farmers will not spray unless they are made to, and suggests that the government offer a bonus to growers who will spray, instead of paying bonuses to railroads. The comparatively small number who will spray, as indicated by the reports of the correspondents, shows plainly the need for much energetic educational work along these lines.

A Liberal Apple Crop Looked For.

Prospects for the apple crop, at this early date, appear bright. Letters received from correspondents to the Horticulturist, in all parts of Ontario, show trees generally have come through the winter in good condition. While reports of injury have been received from a number of sections, a great many correspondents announce that orchards are apparently all right. Mice in some sections have done great damage, but in others they have apparently done no appreciable harm. A few growers have lost almost their entire orchards. In the majority of cases growers state that only 1 per cent. to 5 per cent. of the trees have been injured by mice. A few run the per cent. up as high as 25 per cent., and in one or two cases to 30 per cent.

In a number of counties, including Ontario and Durham, as well as in the eastern and northern sections, a large number of trees are being set out. In many other counties the acreage will be increased little, if any. Reports from four townships in York county, five in Grey county, and almost equally as many in Bruce, Victoria, Peterboro', Northumberland, Wellington, Leeds and others, show the acreage of new trees will be very small. Some correspondents in Simcoe county state growers there will not set out any more new trees this year, as they have found it difficult to give orchards now bearing proper attention. Only one grower

out of all those heard from in these different counties mentioned any new trees being set out.

More Spraying Will be Done.

There will be more spraying done by large growers than ever before, although the number of small growers who will attend to this work will show but little increase. While in most sections the number who will spray this year will show a considerable increase, other reports indicate that less spraying will be done this season than in 1903. In York county one correspondent estimates one grower in 12 in Markham township will spray, while another correspondent in Etobicoke township estimates the number who will spray at one in 20.

In Collingwood township, Grey county, the number of growers who will spray is stated to be increasing all the time, while a report from Glenelg says that no spraying will be done at all. A correspondent in Simcoe county puts the situation very tersely when he says that "not half enough spraying is being done." The general tone of the reports received indicates hat growers are hopeful that the crop this year will be a liberal one if conditions during the summer are favorable.

Considerable Damage in Peach Orchards.

Although many reports of great damage to peach orchards have been received by the Horticulturist, indications are that a large proportion of the orchards have come through the winter in a very fair condition. Reports conflict to such an extent that it has been impossible to gain any very accurate information as to conditions as a whole. While a correspondent in one township reports trees have wintered in good condition, another correspondent in the same township writes nearly all the young trees have been killed. The following brief extracts from the reports of correspondents will give a general idea of conditions.

LINCOLN COUNTY.

Contrary to the opinions of a good many other growers, I do not think any appreciable number of our trees or vines have been injured by the cold. As regards fruit buds, on the more tender varieties of peaches they are pretty well killed. With favorable weather from now on we may hope for a crop of peaches in hardy varieties and on vigorous trees. Plums of the Japanese variety show the buds vigorous and swelling fast. Strawberries, like the wheat, have been badly scorched by the intense cold, and we may look forward to rather a light crop. —(Robert Thompson, St. Catharines.

In Grantham township trees have wintered fairly and are in good condition. Mice have done considerable damage. Peach buds have been considerably injured.

It is still too early to say how the trees have wintered in Pelham township; about one-fifth have been injured by mice. Quite a number of new plantations have been set out this year. Between the damage from mice and frost, my opinion is fruit will run very short this year.

One quarter of the trees in Pelham township have been injured by mice, while many were dstroyed by the severe winter. Buds on peach trees have nearly all been killed by the frost.—(J. P. Townsend, Pelham township.

Old trees have wintered poorly in Grantham township; young trees fairly well. About 5 per cent. of the peach trees have been injured by mice. Owing to the fear of scale, not many peach trees are being set out. Only a small crop can be expected from the old trees.

ESSEX COUNTY.

In the vicinity of Leamington the severe and long continued cold weather destroyed the peach orchards. The damage appears to be as great as it was during the winter of 1899. Very few peach trees planted over 2 years have sufficient life and vigor to be of any commercial value. Plums are much injured; cherries, pears and apples to some extent. The frost went down 4 to 5 feet, and there was not a thaw during the whole winter. The blossom buds on peach trees are probably not more than half destroyed.

In East Sandwich township trees have wintered well, only about 1 per cent. having been injured by mice or frost. Few new peach orchards have been set out. A few orchards wintered poorly, but in my section they have done fairly well.

About 5 per cent. of the peach orchards in Colchester township have been injured by mice and frost; very few if any new orchards will be set out this year. Fruit buds appear to be in good condition. The wood in the older trees is partly killed, but the young trees are apparently all right.

Some 50 per cent. of the peach trees in Gosfield township have been injured by mice and frost, and from 10 to 25 per cent. will die. The greatest damage was due to the severe winter. On light soils many orchards will be a complete loss.

Prospects for the peach crop in the vicinity of Ruthven are fair; old trees that went through the freeze of 1898 are injured, but these are a small per cent of the number of trees out. Several hundred have been destroyed by mice, but this injury will only affect a comparatively small part of the total number of trees. European plums have been badly injured, while the Japanese varieties are all right.

KENT COUNTY.

Peach growers in East Tilbury township report trees have wintered fairly well, and that buds are promising. About one-eighth of the trees have been injured by mice. Few, if any, new trees are being set out. Some orchards have been slightly damaged by water. Out of 2,000 peach trees 200 have been killed. Otherwise, orchards are in fair condition. Few trees in Harwick township have been frozen; the total damage by mice or frost amounting to about 25 per cent. Fruit buds are not in very good condition. The San Jose scale has done great damage and discouraged growers.

WENTWORTH COUNTY.

Peach buds are of a dark color and have pro-

bably been seriously injured. In a few days it will be possible to tell more definitely what the damage amounts to. Wood, particularly on the east side of the branches, has been badly injured. Where the snow was blown away or ice laid the roots have been partially destroyed. The roots of trees in sod, and of trees covered with snow during the winter, are sound.

LAMBTON COUNTY.

Peach buds are in fair condition, although danger of late frosts is not over yet. Trees wintered well.

HALTON COUNTY.

Tender varieties of peaches were frozen, although, on the whole, trees wintered well. Two to 5 per cent. have been injured by mice or frost. The buds on the hardy varieties look well, enough being alive for a fair crop. Tender varieties one year planted, and those bearing heavy buds last season, suffered from the hard winter.

NORFOLK COUNTY.

Nearly all the peach trees in the vicinity of Simcoe were killed by the severe winter. I had 1,400 trees killed. Great damage was done young trees by mice. Not as many new trees have been set this year as usual.

WELLAND COUNTY.

Peach trees wintered without injury in Bertie township, none being destroyed either by mice or frost. Fruit buds are well advanced.

About half the young trees in the vicinity of Fonthill have been injured by mice or frost. Not many new plantations are being set out. It is still too early to judge the condition of fruit buds.

TALKS WITH THE FRUIT GROWERS

Apple and plum trees have an abundance of buds and are in excellent condition. Sweet cherry buds badly killed. Peach fruit bud varieties more or less damaged. Grapes not injured.—(W. M. Orr, Wentworth Co.

Plum orchards look badly. Don't think there will be much this year, as they bore so heavy last year.—(H. P. Townsend, Lincoln Co.

Plum rot was quite bad last year, therefore quite a number of trees have been destroyed.—(Samuel Brigham, York Co.

The number of growers who will spray this year will be greatly increased. Former bitter opponents to this treatment of trees are now most anxious to fall into line and thus save their orchards.—(Wm. Armstrong, Lincoln Co.

About one-fifth of the young trees have been girdled by mice. Cannot tell of damage by frost to fruit trees until after the leaves come out.—(G. C. Brown, Welland Co.

Grapes look well. Good prospects for full crop if no late frosts appear.—(S. P. Townsend, Lincoln Co.

Peach buds nearly all killed by frost. Few live buds to be found.—(S. P. T., Lincoln Co.

In my opinion, between mice and frost, fruit crop will be very small this year.—(C. Sloat, Lincoln Co.

Orchards slightly damaged by water. Out of 2,000 peach trees 200 have been killed; otherwise orchards are in fair condition.—(Geo. Chalmers, Kent Co.

Takes too many men to work our present spraying outfits. A one-man rig auto-sprayer is needed to fill the bill.—(S. Spillet, Simcoe Co.

Wood in older trees is partly killed, but the young trees are apparently all right.—(A. Ferris, Essex Co.

Fruit in this locality wintered fairly well; mice have damaged shrubs and ornamental trees badly.—(D. James, York Co.

There will be very few plums this year. A good show of apples, cherries and pears if weather is favorable.—(Wm. Adams, Ontario Co.

Old trees did not make much growth this year; no crop expected. Young vigorous trees about one-third of the buds alive. Should be enough for crop if not injured by frost.—(F. G. Stewart, Lincoln Co.

Tender peaches, one-year planted trees, and those bearing heavy loads last season, have suffered from the hard winter.—(W. V. Hopkins, Halton Co.

My escape from the ravages of mice I attribute to a good collie dog and a good cat kept at the barn, but not at the house.—(J. J. Collins, Lincoln Co.

A great deal more spraying is being done in my neighborhood than in the past, and I think the sooner growers all get in the way of spraying the better.—(J. A. Swan, Simcoe Co.

Not much spraying done here. A neighbor and I have a barrel sprayer, the only one I know of around here.—(Jas. Chandler, Simcoe Co.

Where there was a profusion of rubbish mice have girdled young trees more than usual, and the more tender fruits, such as the peach, are injured; some winter plums are safe.—(W. A. Parsons, York Co.

Some varieties of fruit are more susceptible to frost than others. Exposed places are noted as being somewhat injured.—(D. James, York Co.

About half the people spray; I think people don't spray often enough during the year. Majority only spray once.—(A. E. Clemens, Durham Co.

I had about 150 apple trees girdled by the mice, 12 plum and 15 peach trees. Nearly all the apple trees were 10 years planted and had just begun to bear.—A. H. Jacobs, Huron Co.

I had my young trees protected with old stove pipe against mice.—(Wm. Cook, York Co.

Having land plowed in orchards, not so much damage was done as where grass has been in different parts.—(A. McDonald, Grey Co.

There has not been spraying enough done in this district for any particular benefit to be derived.—(I. Smith, Northumberland Co.

Present season likely to be a good fruit year. Buds not out yet and all vermin killed by cold. Spraying only useful 1 out of 10 times. Plenty of fruit buds.—(L. Conant, Ontario Co.

I have found no difficulty this spring spraying peach trees 10 years old, which touched in the rows, by means of my Wallace power sprayer. This sprayer has proved satisfactory in every way. Any growers who would like to see it in operation are invited to visit my orchard.—(J. W. Smith & Son, Winona, Ont.

I have saved my apple trees when girdled by mice in the following manner: I use fresh cow manure and wrap it with a cloth around the tree, tying securely. Trees 6 or 7 years old, that were completely girdled, have been saved in this way.—(A. J. Lace, Northumberland Co.

Many fruit buds have been destroyed by the severe winter. Orchards with long grass have suffered badly from mice.—(A. E. Bellman, Durham Co.

The present cool weather will delay blossoming until late and may mean a good crop of apples.—(Farmer Lick, Ontario Co.

Cannot tell what injury trees have suffered from frost, but I think very little, as snow was deep and remained all winter. Expected more trees would be girdled than there are.—(W. T. Weir, Ontario Co.

Currant, gooseberry and raspberry bushes very much damaged by crust on heavy snow.—(F. D. Stubbs, Muskoka Co.

I am going to spray the first day it is fit, and with the lime, sulphur and caustic soda, as given in the April Horticulturist, for the oyster shell bark louse, which is very bad in this district.—(A. D. Harkness, Dundas Co.

There are far to many poor varieties of fruit and too little top grafting is done. Give farmers a bonus for grafting and spraying instead of railroads.—(J. G. Graham, Grey Co.

Am very busy shipping apples now; selling very good. Have kept good Baldwins, Spys, Russetts and Ben Davis.—(W. W. Cox, Grey Co.

Very little spraying done in our locality; farmers have very little faith in it from tests generally. Some trees have been girdled with mice as many as 10 to 15 per cent.—(C. Hoare, Huron Co.

My plum trees have been out five years last fall, and they have borne plums for three years. They are full of buds now, if the frost does not kill them.—(A. Swazzer, Monch Co.

Most severe season I have ever seen. Late frosts so severe that many of the spring birds were frozen to death.—(Frank Metcalf, Huron Co.

Last year, out of 200 trees, I lost 83 trees by mice. Last fall I put common screen door netting around the trees to a height of one foot. —(Samuel Cherry, Norfolk Co.

The mice have done large damage even to large apple trees, by girdling them. The frost has apparently killed many peaches and plums, as far as can be seen now.—(C. S. Coatsworth, Kent Co.

As an advertising medium for selling strawberry plants, The Canadian Horticulturist is away in the lead. From an advertisement in The Horticulturist my yearly sales have more than doubled.—(Charles H. Snow, Strawberry Plant Nurseries, Cummings Bridge, Ont.

We recommend The Canadian Horticulturist to any person requiring a purely horticultural paper for advertising purposes.—(J. A. Simmers, Wholesale Seed Merchant, Toronto, Ont.

The Canadian Horticulturist is an excellent medium in which to advertise our business, and we are glad to recommend it as such.—(John A. Bruce & Co., Seed Merchants, Hamilton, Ont.

The Orchard Monarch

is the spraying machine which should receive the attention of large sprayers. It is a mounted sprayer carrying 150 gallons of liquid. The force for operating is supplied by the mere movement of wagon by means of hind wheel gearings. It is intended for large orchard operations and is a

Perfect Automatic Sprayer.

Driving from tree to tree generates power—130 lbs to the inch—to spray five minutes with two nozzles and reach top of tallest trees. It also operates automatically the liquid agitator and brush for cleaning suction strainer, so that vines and foliage are never scalded nor burned and nozzles never clog. The Monarch, as the name suggests, is the peer of sprayers for large orchard operations. We manufacture many kinds and sizes of sprayers for all purposes. Write us for anything in the spraying line, formulas, appliances, etc., and ask for our *Free* book on spraying.

Field Force Pump Co., 231 Eleventh St., Elmira, N.Y.

C. G. DAVIS, Agent for Ontario, - FREEMAN, ONT.

TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

JUNE

AND what is so rare as a day in June?
Then, if ever, come perfect days;
Then Heaven tries the earth if it be in tune,
And over it softly her warm ear lays:
Whether we look, or whether we listen,
We hear life murmur, or see it glisten;
Every clod feels a stir of might,
An instinct within it that reaches and towers,
And, grasping blindly above it for light,
Climbs to a soul in grass and flowers.

JAMES RUSSELL LOWELL.

Cultivating An Essex County Peach Orchard.

Proper cultivation is now generally recognized as an essential to success in fruit growing, and June is the month when a large part of this work is done. The illustration shows a cultivator at work in the four year old peach orchard of Messrs. Hillborn & McLachlan, of Leamington, Essex County. Mr. Hillborn may be seen leaning against a tree. Mr. McLachlan is seated on the cultivator. The construction of the implement here shown is such that by removing four bolts it is possible to shift the tongue 15 inches to the left. This enables the operator to work right up to the trees by always driving the right side next to them. In the spring narrow teeth are used where plowing is not desired. After the land has been well worked up and weeds begin to appear, the narrow teeth are replaced by eight inch sweeps, which cut all weeds and give excellent cultivation at the same time.

The Canadian Horticulturist

JUNE, 1904

VOLUME XXVII NUMBER 6

THE SAN JOSE SCALE IN ONTARIO

"ALTHOUGH the area affected by the San Jose scale increased slightly last year, and while I doubt if the scale will ever be entirely stamped out in the province, yet on the whole I think the condition of the scale is most encouraging. The panic period when growers did not know what to do for the scale has passed. It is now realized that thorough spraying will not only check the spread of the scale, but that if continued it may entirely remove it."

These remarks were made recently to The Horticulturist by Mr. J. Fred. Smith, of Glanford, San Jose scale inspector for the province. Mr. Smith for several years has been in close touch with the work of fighting the scale, and consequently is in a good position to speak authoritatively concerning it.

"An encouraging feature of the present situation," continued Mr. Smith, "is that growers are spraying as they never sprayed before. There has been a large increase this season in the number of growers who have bought spraying machinery. Last year there were only three power sprayers in use in the province. This year eleven have been used for the scale alone, not counting those used by the Dominion Department of Agriculture. This year 86,464 pounds of sulphur have been purchased to use in fighting this pest. This is fully one-third more than was purchased last year and twice as much as two years ago, although the area in which the scale is located has increased very little during that period.

"In most of the infected localities the people appear to be thoroughly alive to the necessity for action. All through these sections may be seen boiling plants of every description, from the threshing engine boiling the lime and sulphur either in large tanks or rows of barrels, to the work of the individual who boils his spraying mixture alone in iron kettles.

WHY THE SCALE MAY SPREAD.

"There are two great dangers. In the sections which are seriously infested with the scale many growers have become so thoroughly discouraged that they have given up all attempts to fight the pest. The consequence is these districts become bad breeding points for the scale and infest other sections, and the orchards of growers who continue their preventive measures. It seems hard to convince these men who have given up, that all other sections where the scale has gained a foothold are not so badly infested as their own.

"The second danger lies in the difficulty we find in convincing growers who have not

actually seen the ravages of the scale of the seriousness of the situation. These men are inclined to minimize the danger and are slow about taking preventive measures. They may thus allow the scale to gain a foothold, after which it is almost impossible to eradicate it.

"In 1897, when the department of agriculture became aware that the scale was being imported in nursery stock received from the States, steps were taken to induce the Dominion Government to prohibit the importation of stock from the infested districts. Knowing that the scale had already been located at several places in Ontario, an act was passed called the San Jose scale act. This act provided for the appointment of inspectors, and wherever the scale was found the trees were destroyed.

ACT WAS PASSED TOO LATE.

"It was thought at this time that in a few months all the scale in the fruit growing sections could be stamped out by burning the trees. When the act was passed the scale had been located at Kingsville and at Van Horne, a small postoffice near Chatham, and also in the section near Burlington. Unfortunately the act was passed about three years too late, as the scale had become established. The first imported trees had stood so long that they had become badly infested and the scale had spread so far and so rapidly that in none of these places has it been possible to entirely stamp it out. I would like to emphasize the fact that in no cases where the scale has become thoroughly established have the people been able to eradicate it. All the infested trees have at times apparently been destroyed, but sooner or later the scale has cropped up in some unexpected place.

"The destruction of the trees was continued for two years, but the government realized that it could not hope to stamp it out and called in the inspectors and started a series of experiments with the object of finding some remedy for the destruction of the scale. These experiments have been carried on to a greater or lesser degree in the infected districts and remedies have been found which if properly applied will help keep the scale in check. In some sections, where the scale was not very thoroughly established, they appear to have entirely stamped it out.

NO NEW OUTBREAKS.

"In the early days of this fight over 100 places were found, where the scale had started through the distribution of nursery stock, that were treated in time to destroy the scale. In none of these places has the scale since been found. One remarkable fact remains that during the last two years no new outbreaks of the scale have been found. This goes to show that the work done by the inspectors in these early years was very thorough.

"Scale has been found more or less all through the chief fruit growing districts of Ontario, but it has made some remarkable skips, leaving some townships so free from it that the people cannot yet be brought to realize that in some districts of Ontario thousands and thousands of trees have been destroyed by the scale. Scale has been found all along the fruit belt skirting Lake Ontario from Toronto to the Niagara frontier, where the scale is at its worst, getting lighter and lighter, with some skips, until after leaving Clarkson. No more scale is known to exist east of that point, although scale has been found in young trees at several points as far east as Belleville. In these last cases it has been stamped out. In the western fruit growing sections, quite badly infested sections have become established at Kingsville, Rondeau, Chatham and Van Horn.

"The lime-sulphur wash is the most popular of all the remedies on trial. It is three years since it was first introduced into

(Continued on page 267.)

INDIVIDUALITY OF FRUITS

W. T. MACOUN, HORTICULTURIST, CENTRAL CANADA EXPT. FARM.

THE stock breeder has for a great many years paid especial attention to the individual animal in breeding for size, shape and markings, and for flesh and milk. Just as satisfactory results should be obtained in improving the strain of a variety of fruit, and although comparatively little has yet been done by horticulturists in this respect with fruits, much has been accomplished with flowers and vegetables. It is now recognized by the best authorities that each bud of a tree has individual characteristics which separate it from all other buds, and although the differences in buds are in most cases so slight that it is impossible to detect them, yet in some instances they may be quite marked.

Fruit growers have often noticed that one tree or bush is more productive than another, or bears larger, more highly colored or better flavored fruit. Take as an example the Fameuse apple. When this excellent old variety first bore fruit several hundred years ago one tree produced all the Fameuse apples there were at that time. Some apples on that original tree were probably not as highly colored as others, although exposed to the same amount of light. Some branches, probably, were more heavily laden than others, although there was no apparent reason why they should be. On some branches the fruit was larger though as well loaded as others. In time scions were cut from that tree and grafted, and a new generation of Fameuse trees was the result. Were the trees thus produced identical in vigor and productiveness, and was the fruit borne on each of them exactly similar in every respect? We believe that they were not. Every bud on every tree of every generation of Fameuse apple trees had individual characteristics, and although the differences were barely enough marked to see, there were doubtless many fine shades of variation.

It does not need a great stretch of imagination to see that if such changes can be made as have been made in live stock, flowers, vegetables and other economic plants, by careful selection, that if, when that first generation of Fameuse apple trees began to bear, scions had been taken from the most productive tree bearing the finest colored apples of the best size, that in the next generation of trees there would be at least a slight improvement, and if this selection had been carried on down to the present time we should have a better Fameuse than we have to-day. This selection, however, has not been carried out, and about all that has been done, in a few cases, is to graft from trees bearing highly colored fruit, but as yet we have practically no reliable information in Canada as to whether the results have been satisfactory.

In small orchards, where the fruit is intended for home consumption, the individuality of different trees is more noticed than in large orchards, where the record of each tree is not brought so prominently before the grower. The effect of the stock on the productiveness of the tree and characteristics of the fruit is not yet well understood. Whatever may be the influence of the stock there is no doubt that each variety maintains most of its individual qualities.

At the Central Experimental Farm the yields are kept from each individual tree in the orchard, making it possible to tell at the end of a certain period just what each tree has borne. It has been found that trees planted at the same time, and growing under practically the same conditions as other trees of the same variety, vary widely in productiveness. Some trees also bear a medium crop every year, while others bear a heavy crop every other year.

In the following table will be found the yields of trees of four varieties of apples for the past six years, with the total yield per

tree for that time. It will be seen that some trees have yielded two to four times as much as others. The yield is given in gallons rather than in barrels, to avoid large fractions.

It is worth mentioning that of the 17 Wealthy trees in the table only 7 bore fruit in 1903, and of those that fruited the tree which had borne regularly during the past four years again bore a good crop in 1903:

APPLES—WEALTHY—PLANTED 1896.

Tree	1899	1900	1901	1902	1903	Total
1	1	2.25	2.75	15.0		21.0
2	2	.5	2.5	12.0		17.0
3	1.75	12.0	2.25	8.0		24.0
4	9.0	2.25	15.5	20.5	27.0	74.25
5	7.5	6.5	7.75	23.0	7.5	52.25
6	3.25	6.5	3.5	24.0		37.25
7	7.5	1.0	10.0	19.0	16.0	53.5
8		8.5	.5	21.5		30.5
9		11.25	.25	27.5		39.0
10	1.0	12.25		30.0		43.25
11	1.25	11.25		21.5		34 0
12		7.5		18.5	2.0	28.0
13	4.25	6.25	4.5	20.0	.5	35.5
14	2.5	5.5	.5	34.0		42.5
15		2.25	3.5	21.5	8.5	35.75
16	3.0	2.25	4.0	22.5	4 5	36.25
17		2 0	1.0	22.5		25.5

APPLES—McMAHON WHITE—PLANTED 1888

Tree	1898	1899	1900	1901	1902	1903	Total
1	62.0		83.0	2.0	147.0	1.5	295.5
2	42.0	1.0	6.0	12.5	98.0	23.0	182.5
3	32.0	29.0	49.0	18.0	55.0	63.5	246.5
4	35.0		34.5	4.0	63.0	34.0	170.5
5		37.5	55.0	49.0		61.0	210.5
6	29.0	4.5	46.0	.5	69.5	43 0	192.5
7	.5	9.5	19.5	4.0	19.0	39.5	92.0
8	7.0	9.0	27.0	9.0	53.0	15.5	120.5

APPLES—McINTOSH RED—PLANTED 1890.

Tree	1898	1899	1900	1901	1902	1903	Total
1	17.5	26.0	37.0	6.5	71.5	94.0	222.5
2	1.0	9.5	10.5	1.0	37.5	31.0	90.5

APPLES—GREENING—PLANTED 1892.

Tree	1898	1899	1900	1901	1902	1903	Total
1	27.0	2.0	35.0	1.5	71.0	15.0	151.5
2	2.0	6.0	14.0	19.0	24.0	55.5	120.5
3	2.0	31.0	1.5	40.5	22.0	67.0	164.0
4	13.0		6.5		12.0	15.0	46.5
5	1.0		19.0	.5	17.0	21.0	59.0

Experiments are being conducted at the Experimental Farm by top grafting with scions from productive and unproductive trees, to determine how far the productiveness and unproductiveness of the trees is constant. Root grafted trees are also being grown for this purpose.

In order that fruit growers might learn, by personal experience, of the great variation in individual trees of the same variety, a co-operative experiment was begun in 1903. On application to the horticulturist, six pieces of zinc, bearing six consecutive numbers, were sent to each person. These pieces of zinc when received were to be attached to six bearing trees of a single variety of apple, pear, plum, or peach, the trees to be the same age, and growing under the same conditions of soil and culture. A record of the yield of each tree was to be kept for at least five years. A number of fruit growers in different parts of Canada have already joined this co-operative test, and it is hoped that more persons will desire to take part in this experiment.

If scions from productive trees will produce productive trees when grafted, and if scions from unproductive trees will produce trees which are poor croppers, it is very important that scions should be taken from the best yielding trees. As grafting will, in all probability, become much more general among fruit growers in the near future, the importance of knowing that trees vary widely in productiveness is easily seen.

CURE WANTED FOR THE PLUM ROT

PROF. W. LOCHHEAD, ONT. AGRI. COLLEGE, GUELPH.

I am troubled a good deal with plum rot, and as yet have been unable to find a cure for it. Can you give me a remedy ?—(Philip Austin, Arkona, Ont.

On account of the fact that the plum rot or brown rot can thrive on many hosts, such as the plum, peach, cherry, apple, raspberry, blackberry, etc., it is difficult to outline a treatment which will be effective. There are two lines of treatment which should be followed, one as important as the other.

First, gather and burn all the mummy plums which usually remain on the tree in a dry hard condition all winter. It has been proven that these mummified fruits serve to carry this fungus over the winter and that they retain their power to give off in the spring the spores which will continue the disease the following season.

One Method of Preparing the Lime Sulphur Wash—No. 1.

In some sections where the San Jose Scale has made its appearance fruit growers have united to fight the pest. One grower agrees to prepare the spraying mixture for the others, who buy it from him at a fixed price. The method here shown is a common one. The wash is prepared in barrels and boiled by steam from a threshing engine. This photograph was taken near Burlington, where Mr. C. J. Davis prepares the mixture for some 15 growers.

WHEN TO SPRAY.

Second, spray thoroughly with Bordeaux mixture. The spraying should be made before the buds open, again just before blossoming, and after blossoming, and the fourth spraying when the fruit is three-quarters grown. It has been found that where insecticides are used, and where the curculio is not so abundant, the brown rot is not severe.

There seems to be some connection between the abundance of curculio and that of the rot, and no doubt the curculio is an agent in the spread of the disease. Thinning the fruit is also an important aid in controlling the disease. As with many other diseases, co-operation among the fruit growers is essential for the control of the plum rot, for it is not fair to the wide-awake careful fruit grower to have an orchard near by which is untended and the mummified plums allowed to remain all winter and become a source of infestation to the best orchards of the district.

WHAT THE DOMINION HORTICULTURIST SAYS.

The above question by Mr. Austin was also submitted to Mr. W. T. Macoun, of the Central Canada Experimental Farm for answer, who has replied as follows:

This disease does great injury every year to the peach and plum crop. It is not as easily controlled as the apple spot, but thorough spraying has been found very effectual. The ripe rot spreads by means of spores, which germinate early in the spring and penetrate the twigs from the leaves and flower buds on which they alight. In order to destroy as many of the spores as possible, all diseased fruit should be gathered and burned, whether it is on the ground or on the tree. This fruit harbors myriads

of spores, which endure the winter, and are capable of infecting the trees the following spring.

The trees should be thoroughly sprayed in time to destroy the spores before the disease penetrates the wood in the spring. The first spraying should be made with poisoned Bordeaux mixture, or a sulphate of copper solution, 1 pound sulphate of copper to 25 gallons of water, shortly before the buds start to develop, and with poisoned Bordeaux mixture just before the blossoms open. These sprayings are very important, and should never be neglected. After the trees have bloomed they should be thoroughly sprayed again with ordinary poisoned Bordeaux mixture, and also ten days to two weeks before the fruit begins to color. The trees should also be sprayed with ammoniacal copper carbonate solution when the fruit is beginning to ripen. This will destroy the spores which appear in great numbers on the mature plums, and will not discolor the fruit.

Plums and peaches which touch one another on the tree give very favorable conditions for the spread of the disease from one fruit to another. Being close together, moisture is retained on the skin, and the spores which may be on one fruit germinate readily and soon infect the next, and thus the disease spreads rapidly. Thinning the fruit makes the conditions much less favorable for the development of the disease. Also discolored and dead wood should be cut out and burned in the meantime. If spraying is thoroughly done the injury from this disease will be much lessened.

The Apple Tree Borer

L. W.

EARLY in the month of June the trunks of the apple trees should be washed with a strong solution of soft soap and washing soda not only to cleanse them of bark lice and fungi, but also to prevent the attacks of borers. Vigorous growing young orchards are seldom attacked, but if the trees are stunted in growth they are often badly affected and sometimes almost ruined. Two species are often met with in Ontario, the round headed and the flat headed, the former of which spends three years in its larvae state working between the bark and the sapwood, and even tunnelling into the hardwood, while the latter completes its development in a single year.

The wash above described should be reduced to the consistency of paint and applied with a broom cut short so as to form a sort of scrubbing brush. The object is to prevent the female moth from depositing its eggs within the bark during the summer season.

Pruning Apple Trees

"I HAVE almost invariably done my pruning early in the spring, as soon as the hard frosts are over, and considerably before the sap moves. This is the general practice in my neighborhood and has given good results."

So stated Mr. Wm. Rickard, M. L. A., of Newcastle, Ont., to an editorial representative of The Horticulturist a few days ago. "Some well known authorities," continued Mr. Rickard, "claim June is the best time. In my opinion June pruning tends to fruitfulness, while winter pruning tends to growth of wood.

"June undoubtedly is a good time to prune, but I have never tried it, not having had time to do the work at that season of the year. I purpose, however, trying some June pruning this year on some of my trees to see what the effect will be."

If a tree bears uniformly the fruit will be larger and better every year. There is much to learn about pruning and fertilizing.

GROWERS ANXIOUS TO ORGANIZE

A HOPEFUL feature of the fruit situation is the desire apparent on the part of fruit growers, in many sections of the province, to organize. It is becoming recognized that only by co-operating in the purchasing of supplies, spraying, and the sale of their products, can the small fruit growers expect to realize the best returns.

As a result of the series of fruit institute meetings held during the spring several local fruit growers associations were formed. A number of these associations are anxious to commence operations but do not know just how they should set to work. With the idea of gaining a little information on this subject The Horticulturist recently wrote to the officers of several well known and successful fruit growers organizations.

THE CHATHAM FRUIT GROWERS' ASSOCIATION

"The principal features of our by-laws," writes W. D. A. Ross, secretary-treasurer of the Chatham Fruit Growers' association, "are that new members are passed upon by the board of directors before being admitted. If a member sells outside of the association he forfeits his membership, but may come in as a new member if the board sees fit. All sales of similar grades are averaged in making returns, so that each member profits by a good sale or shares the loss in a poor one.

"I may say here, however, that no member has been asked to put up a dollar in the way of loss yet. Our returns have not always been as large as we could wish for, still on the average they have been very satisfactory, and we have not been at the buyers' mercy.

"Our fruit is all packed at a central packing house, a warehouse placed at our disposal by the C. P. R., and since it is all graded by the one set of hands the quality is uniform. We find too that we can do it cheaper in this way, and can work in all kinds of weather, which in a season like the last two is quite an advantage.

"Our directors thought of putting up a packing house of our own this season, but decided to let the matter stand over till next season, and devote their attention and funds for this season to power spraying."

ST. CATHARINES COLD STORAGE AND FORWARDING COMPANY.

One of the most noted and successful organizations of fruit growers in the province is the St. Catharines Cold Storage and Forwarding Co., Limited. This company has been in existence for some six years, and now does a large business. Its receipts last year amounted to $3,005, and its assets total $8,585.73. Last year it shipped for its members 2,465 tons of all kinds of fruit. By conducting their business on such a large scale the members are able to obtain many concessions from the buyers, railway companies and other firms.

Through the kindness of the president of the company, Mr. Robert Thompson, of St. Catharines, The Horticulturist is enabled to print the by-laws of this company. They read in part as follows:

(Continued on page 263.)

Is Willing to Help.—I would esteem it a great favor if fruit growers and all others who read The Canadian Horticulturist would write me about the troubles of the orchard and garden and send me specimens of the pests. By coming in close touch with them, it should be possible for me to do a great deal more for them, as well as make myself better acquainted with conditions as they actually prevail. In exceptional cases I might visit the locality where the disease is spreading or alarming.—(W. Lochhead, Entomologist and Plant Pathologist, Guelph.

CULTIVATION OF THE ORCHARD

L. W.

THE key word of orchard work during the month of June is cultivation. A great change has come over the methods employed during the past few years, and especially with respect to working up the orchard. Even yet a few advocate leaving apples in sod, but the more progressive fruit growers and those who grow the finest fruit give the best and most thorough cultivation.

The object of cultivation is two-fold, (1) to increase the fertility of the soil by making the plant food more available by the tree roots, and (2) to conserve moisture. There is little doubt that much of our orchard soil is sufficiently rich for the needs of our apple and pear orchards, providing such tillage is given so as to make the plant food available by the tree roots The saving of moisture is perhaps the more important object of the two in a country like ours, where rains are not so frequent in mid-summer.

Boiling the Lime Sulphur Wash in Tanks—No. 2.

At Winona, Mr. J. W. Smith prepares the lime sulphur wash for some 25 growers. Last year 10 large barrels were used. but this year two large tanks. holding some 500 gallons each, were made. It is much easier to heat the water in these tanks, less fuel is needed and the amount of work is reduced. It is much more difficult to stir the mixture in a small barrel than in a tank. The wash is boiled for two hours, by which time it is thoroughly mixed.

If cover crops occupy the ground these should be plowed under as early as possible before they begin to draw moisture from the soil. And in any case an early plowing of the orchard will make it pervious to the early rains, so that the water will sink into the soil and not be carried off by surface drains.

Continued cultivation during the month and a part of next month is essential to the best fruitage, because either a sowed crop, or a self-sown crop of weeds will rapidly steal the soil moisture from the orchard trees, and because at this time the greater part of the wood growth is made.

Another most important reason for continued cultivation is the retention of soil moisture. Every one knows that a mulch will retain the moisture in the ground beneath it. Lift a board or a heap of rubbish in summer and note the moist condition of the soil beneath., A mulch of fine dry dust will act in the same way, and the easiest method of providing it is by frequent shallow cultivation. After the ground has been once worked up with plow or disc, a sharp tooth harrow should be a suitable tool for keeping the dust mulch on the surface. Ground should be gone over every ten days or so, and in particular soon after every rain, because this latter tends to form a crust and destroy the effect of the dust mulch.

No one rule applies in every case. There are orchards which do not need cultivation, and may be left in sod with better results than if worked. We refer to those planted on deep rich sandy loam, inclining to be moist, such as are found along the base of the Niagara escarpment. The springs from the " mountain " in some cases tend to keep a supply of moisture in summer, and the land is so rich that the wood growth is almost too great. If such orchards were in sod the excessive wood growth would be lessened and greater fruitfulness result.

In working about orchard trees some men have great difficulty in avoiding injury to the trunks, especially if the trees are young. A careful adaptation of harness and tools will much facilitate the work. The ordinary farm harness. with its projecting hames and upright turrets, is entirely unfit for orchard use. The former should lie as close to the collar as possible, and the latter should consist simply of a ring, which will be flat on the saddle.

The ordinary long double trees also are entirely unfitted for the orchard; the ends will surely scrape the trees in passing even if bound with cloth. At Maplehurst we use a set made with principal beam 31 inches long, of an oak piece 2 x 3½, and the whiffle trees are each about 22 inches long. These enable a horse to walk quite close to a row of trees without injury to the trunks.

Most of the plowing in an orchard on sandy soil may be done with a gang plow, and the trees may be finished with a one-horse plow, followed by a grape hoe, like the one shown in the accompanying illustration. This tool enables a wonderful saving of work, not only in the vineyard but also in clearing away the sod and earth close about the trees. If managed skillfully with a horse trained to the work there will be very little left for hoe or spade after the grape hoe has done its work.

GRAPES AS A PROFITABLE CROP

AARON COLE, ST. CATHARINES, ONT.

THE best variety of grapes that may be grown for profit will depend very much on the character of the soil. I have two vineyards, one on a clay loam and the other on a deep gravel. The same varieties of grapes are planted on both, namely Niagaras, Concords and Worden.

These I consider the three best varieties for money making, but it is also essential to have some red grapes. The Vergennes and Brighton are possibly the best. None of the Rodgers variety have proved satisfactory to me, but for an assortment I would recommend a few Agawam and Rodgers No. 15. It is necessary to have red, white and blue grapes in order to fill a car in good shape for the northwest trade.

SOIL AND FERTILIZERS.

The soil requires more or less fertilizer. I find nothing better than well rotted barnyard manure placed around the vines in the fall of the year. Above all things, do not place green manure around them during the winter season, or your vines will suffer from incursions of mice. Bone meal is also good, about 400 pounds to the acre being a proper amount.

The best soil for grapes is deep coarse gravel, and the next best a clay loam. Either of these require very little fertilizer as compared with a sandy loam. In the spring of 1867 I planted 270 vines on gravel, and I have had occasion to manure that portion of my vineyard only once since. Those vines furnish me with plenty of wood and grapes every year. My impression is that the stones in the gravely soil draw from the air what is required for the nourishment and fruition of the vines, and the soil as a result is self-sustaining for grape culture. No crop gives the farmer more pleasure to handle and market than a good grape crop.

SPRAYING MIXTURES UNDER TEST.

PROF. R. HARCOURT, ONT. AGRI. COLLEGE, GUELPH.

A TEST of the relative efficiency of the lime sulphur wash and the McBain mixture was made this spring under the auspices of a special committee appointed by the Fruit Growers' Association to ascertain which of the two above named substances is the most effective in destroying the San Jose scale. The orchard selected for the experiment belongs to Mr. Bunting, of St. Catharines, and consists of about 65 thrifty growing peach trees.

Before the spraying was done each tree was carefully examined by Messrs. Bunting, Robert Thompson, and Healy, the members of the committee present, and Prof. Lochhead, and full notes were taken regarding the condition of the scale on each tree at that time. Every other row was then sprayed with the lime-sulphur wash, and the intervening rows with the McBain mixture. Mr. Bunting was responsible for the application of the former and Mr. McBain for the latter. Both men were allowed to make the spraying as thorough as they saw fit, but nothing further was to be put on the trees until after they had been examined by the committee at the end of June or the early part of July. Every possible point was safe guarded, and there is no reason why the tests should not be considered thorough and fairly conclusive.

The same day a barrel of the lime-sulphur and salsoda and a barrel of the lime-sulphur and caustic soda washes were prepared and applied to an adjoining orchard. The former was made according to the following formula: Lime, 25 pounds; sulphur, 20 pounds; sal soda, 12 pounds; water, 40 gallons. These were put together without any artificial heat being used in the boiling. The lime-sulphur and caustic mixture was also prepared without any artificial heat, and the following amounts of the various substances were used: Lime, 30 pounds; sulphur, 15 pounds; caustic soda, 5 pounds, and water, 40 gallons.

Both solutions developed the characteristic color of the lime-sulphur wash, and those present were delighted with the simplicity of the method of preparation. Since that time several barrels of these mixtures have been made and applied in the same neighborhood, and it will be interesting to see how effective they will prove in destroying the scale. Their great advantage over the regular lime-sulphur wash is that they are not boiled, and thus that tedious process is saved. Some other substances have been applied, which, if effective, will greatly reduce the cost and trouble of the spraying.

THE OYSTER SHELL BARK LOUSE

L. W.

PERHAPS the most common insect enemy of the apple in our province is the oyster shell bark louse, an introduction from Europe nearly a century ago. It gets its name from the shape of its shell, which, however, is only about one-sixth of an inch in length.

During the warm weather early this month, these young lice hatch out and begin moving about, and in a few days attach themselves to some portion of fresh bark by inserting their tiny sharp beaks to suck the sap. These young lice are scarcely visible to the naked eye, being only about the one-thousandth part of an inch in length. It is at this stage of their history that these bark lice are most easily destroyed. A thorough washing of the tree with a strong solution of soft soap and washing soda, or a spraying with a solution of washing soda and water, ½ a pound to a pailful, will cleanse the bark of them.

Does Not Believe in Low Topping

JAMES C. HUGGARD, WHITBY, ONT.

THERE are a great many very useful hints given in The Horticulturist, but some features presented to your readers are, to my mind, entirely misleading. One I cannot agree with is the training of low headed fruit trees. By low headed trees I refer to those that branch out two to four feet from the ground instead of four and a half to six feet.

I would like to ask the advocates of low heading where they obtain their prize samples of fruit, if not on the top branches? As it is well known that cultivated orchards yield a much greater return of first-class fruit than an uncultivated orchard, I would like to know how an orchard of say Greenings, Talman Sweet and many other varieties of like habit of growth can be cultivated where the trunk is only three feet high? As a matter of fact, I have never seen well colored fruit on low branches, nor yet the best specimen of green or yellow varieties, except invariably on the higher branches.

A SERIOUS MISTAKE.

Having been actively engaged for the past 30 years in fruit growing, I have found to my sorrow that to allow branches to form less than 4 to 6 feet from the ground, according to the variety planted, is a serious mistake. The argument usually advanced is that the low headed trees are easier to pick, but this is in theory only, as a picker will gather just as many baskets on a ladder twelve to fifteen feet long as on one six feet long.

As to cultivation, it is simply impractical to get the land cultivated near the trees where the limbs are close to or lying on the ground. I advise all fruit growers, therefore, to get good clean trunks while the trees are young. They will not then be under the necessity, later on, of cutting branches 3 to 6 inches in diameter, as some orchardists are doing this year, in order that they may work among their trees.

Another matter fruit men should attend to at once is the planting of spruce for wind breaks. They not only add to the beauty of a farm or orchard, but add very materially to the total crop of fruit by protecting the trees from high winds in the fall. I cannot too strongly recommend the planting of spruce both for ornament and use. I have several hundred spruce planted, some of which have grown 40 feet high in 22 years from seed.

Trimming Apple Trees

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I would like to know the proper time of the year to trim apple trees. Most of those professing to be experts differ. I saw a statement by one member of the fruit growers' association who said, "prune when your knife is sharp." When is the best time?—(M. H. D. Silver, Sutton, Ont.

There is a great diversity of opinion in regard to the proper time for pruning trees, which, in itself, shows there is considerable latitude within which pruning may be done safely. Light pruning may be done almost any time of the year, but it is not well to prune to any extent when the trees are in foliage, nor is it well to prune heavily in the fall after the foliage is off, as the wounds are exposed to severe winter conditions before healing begins.

The safest time to prune is early in the spring after severe frosts are over. Wounds made at this time heal rapidly. I had occasion recently to visit an orchard near Ingersoll which had been severely pruned last fall before the leaves were entirely off the trees. The result was that the sap in the trees at that time was not properly elaborated, and as a consequence it was badly effected by severe winter freezing, so much so that in some cases the bark this spring peeled readily from the trunks of the trees.

The Cherry Crop

L. W.

TOWARD the end of June, and before the strawberry harvest is quite completed, growers will be engaged with the early varieties of sweet cherries. The Early Purple will be the first to ripen, and will soon be followed by Governor Wood, Cleveland, Elton, Knight's Early Black and Black Tartarian. No doubt the severe winter has severely thinned out these tender varieties, even in the more favored districts. In some parts the cherry has become a very important market fruit, and the loss of it by the severe winter will be a serious misfortune.

As a rule men are the most satisfactory cherry pickers, because the ladders are too heavy to be moved by women and children, and one might better do the work than to be on constant call to move them. Besides women's wages are nearly as high as men's, now women have invaded nearly every avocation in life. A good man cherry picker will gather one hundred quarts a day, in average picking, and do it properly too. By this is meant handling the fruit by the stems and scarcely touching the cherries with the hands. We usually gather the fruit into the half basket, holding about 7 quarts, and if free from rot they will not need turning out on the packing table. Unfortunately the early kinds are often very subject to rot, in which case they must be turned out and repacked.

A GREAT TROUBLE WITH CHERRY GROWERS.

The rot is one of the greatest evils of cherry growing, for it spreads rapidly and soon destroys a magnificent crop of large fancy cherries. It pays the cherry grower to begin early spraying his sweet cherry trees with Bordeaux, especially such varieties as Elton, Black Tartarian and Napoleon Bigarreau, and to continue the treatment until the cherries are well grown, with the ammoniacal copper carbonate and soap, because it does not whiten the skin of the fruit. The addition of soap is advised as an improvement on the old formula, by the Geneva Experiment station in a recent bulletin, as follows: Copper carbonate, 6 ounces; ammonia, 3 pints; soap, 1 pound; water, 50 gallons. Dissolve the copper carbonate in the ammonia, somewhat diluted with water, using no more ammonia than is necessary barely to dissolve the copper carbonate. Put this into 40 gallons of water. Dissolve the soap and add to the solution of copper carbonate. The solution loses strength on standing in open vessels, but may be kept indefinitely in stoppered bottles.

The Salome Apple—No. 1.

L. W.

This is a new western apple which promises to be of great value, especially for the Muskoka and Ottawa sections and parts similarly situated. The hardiness of the tree, the clean, bright color of the fruit and its long keeping quality seem to combine in its favor as a commercial variety. Mr C. L. Stephens, of Orillia, has fruited it in his garden and has kept samples of it until June.

If we fruit growers expect to keep in line with other branches of business we must get out of the old rut and be alive to our duty. See to it that our trees are doing the most possible for us.—(George A. Gott, Arkona, Ont.

Sod and Cultivation in the Orchard

"MY belief is," said Mr. William Rickard, M. L. A., of Newcastle, Ont., to an editorial representative of The Horticulturist recently, "that in deep soils, which will retain moisture readily, the Spy apple will do better if the land is left in sod, especially if it is mulched with barnyard manure. Where the ground is left in sod the apple appears to color more readily. With the Baldwin and Greening the difference is not so marked. All varieties of apples grow larger when the ground is cultivated. Where cultivation is practised the Spy seems to grow too large and not to color as well.

"On sharp, dry soil, cultivation is necessary, as otherwise trees will suffer from the drouth. The season, of course, must always be considered, as not so much cultivation will be required if there is plenty of rain.

"When my orchard was young I used to keep it in hoed crops. As the trees become larger and the roots took up the soil, these crops were discontinued. A cover crop is always best after July 1. I prefer clover, although some sow buckwheat or rye. Clover is the best for the land.

"Plow lightly as soon as the land is fit, and then keep the harrow and cultivator at work, stirring the surface at least once a week that it may be kept fine. When the cover crop is put on in July it helps to check growth and mature the wood. I am trying sod now in my orchard, because the land does not need conservation of moisture and because the branches of my trees are touching, although the trunks are 30 feet apart."

We are looking forward this season for better results in our orchard from power spraying.—(W. D. A. Ross, Chatham, Ont.

In thinning the apple tree try and do it so the vitality of the tree will be sent into the fruit.—(J. S. L., Bartonville, Ont.

Cultivation in the Plum Orchard

J. G. MITCHELL, GEORGIAN BAY EXPERIMENTAL STATION.

ONLY naturally well drained soil sufficiently rich to grow good farm crops will do nicely for plums. Trees grow faster and bear better on loamy soil, but probably live a little longer on clay.

For the first few years hoed crops may be grown, providing there is sufficient plant food for both trees and crops. After trees come into bearing they should have the land to themselves and receive clean cultivation.

CONSERVING THE MOISTURE.

In order to conserve moisture, begin in the spring as soon as ground will work nicely, and continue cultivation right along. Harrow or cultivate once every week or two, or after every heavy rain. As soon as the tools will work clean, provide a good heavy blanket of dust or very fine earth. This will prevent capillary attraction and hold all the moisture needed, even if it should not rain for a week.

About the last of July, or first of August, cultivation should cease, so as not to encourage late growth, but a hard ripening of the wood. Sow with crimson or red clover. I do not know which is best, as I have had splendid stands of both. This should be plowed down during the following spring and cultivation renewed as outlined above. Don't forget to feed seven or eight cents worth of barnyard or commercial fertilizer to each tree. It will keep them doing nicely.

Trees Ringed By Mice.—It has been said that if trees ringed by mice have the earth thrown up around the injured part they will still grow. This is not so; I have tried it and it failed. Mice want the inner bark, and go for what they want, and if the trees are treated in that way they will die. The only way is to bridge them. I have always been successful in bridging.—(A. Shaw, Walkerton, Ont.

SOMETHING ABOUT PLUM GROWING

PHILIP AUSTIN, ARKONA, ONT.

I HAVE one block of plum trees containing 151 trees, seeded down to Lucerne clover, from which I cut three crops of grass annually. The trees are healthy and productive, but if the land was not seeded so heavily it would probably break up.

I prefer clean cultivation, because sod makes a harbor for mice, although last year I had the best plums on the sod. They had a better color and the trees were heavier laden than where the ground was cultivated.

Wood ashes and barnyard manure are my favorite fertilizers, although I have not used any for two years in the orchard, as the ground has been in good heart and did not require it. About 40 bushels of wood ashes per acre, every other year, is sufficient fertilizer, providing the ground is in good shape. Last season I fruited 19 distinct different varieties, and would pick the Burbank as my business plum, it having been the most profitable with me. Eighteen trees yielded about 50 bushels of as fine fruit as one would wish to see. Satsuma Blood is another favorite. Any grower who has none of these should try them. Six trees yielded me over 15 bushels. They excel anything I have in quality and are the best and easiest sellers owing to their color. They have a very small pit and thick flesh.

The Saunders Seedling is a plum of merit owing to its earliness, coming on the market when there is a demand for such a plum. It is our earliest European. The Lombard is a good plum, but a poor seller.

We need something that is attractive on the market, especially in a season like the one just passed. It is a great mistake to put plums on the market before they are ready. It is a pity to see plums on the market when they should have remained on the trees for weeks longer. Grand Duke, Bradshaw and Niagara also do well with us, but do not yield as well, and hence are not so profitable. Reine Claude is a favorite owing to its lateness, coming when people are not usually looking for plums.

SPRAYING IN JUNE

L. W.

THE two important sprayings have been done in May by most fruit growers, viz., the one just before the blossoms open and the one just after they fall. For fungi and codling moth a third should follow a couple of weeks later when the fruit, such as apples and pears, are still small.

The dust spray is coming into favor in some sections because of so much easier application than the liquid. Mr. Goodman, secretary of the Missouri Horticultural society, has used it altogether on 400 acres of apple orchard, and is satisfied with the results. He claims it is safer, more easily applied, costs less, takes less time, and saves hauling large loads of water. He uses the following formula: Lime, 30 pounds; paris green, 1 pound; dry Bordeaux, 1 pound; concentrated lye, pulverized, 1 pound; sulphur, 1 pound.

For San Jose scale the lime sulphur spray is being prepared with the use of caustic soda to avoid the boiling, which was the great bugbear in the way of its general use. One formula is as follows: Thirty pounds of lime, 15 pounds of sulphur, 5 pounds of caustic soda, using a little hot water to slack the lime, with no further boiling. This is a winter or spring spray, and is mentioned now because so many are interested in the discovery of some method which will simplify the preparation of this lime sulphur spray, and will be interested in further reports concerning it.

The Salome Apple—No. 2.

L. W.

The Salome originated with E. P. Hathaway, Ottawa, Ill. The tree is very hardy, productive, an early and an annual bearer. Fruit: Size medium to large, about 3 x 3 inches; form roundish, conical, somewhat lop-sided; color bright red with stripes of darker red and numerous small grey dots on a yellowish ground. When harvested the skin is green, but during the winter it takes on the coloring above described. Stem stout, three-quarters of an inch long, set in a deep uneven cavity; calyx half closed, segments erect, in a moderately deep, slightly plaited basin, having five distinct prominences; core large, open, sessil. Flesh: Color yellowish; texture firm, becoming tender towards spring, not very juicy; flavor pleasant, subacid. Season: November to May. Quality: Dessert or cooking, fair to good. Value: Promising for export. Adaptation: Succeeds remarkably well in the county of Simcoe.

Enriching the Orchard

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

What is the best crop to sow in the orchard to enrich it? My orchard is about 20 years planted on excellent clay loam. It was in grass for some years, till last season I plowed and sowed to buckwheat. I did not reap the buckwheat, but allowed pigs and cattle to tramp it down. I intend cultivating to keep grass from growing. All the manure available was put on. I thought of sowing it to peas and allowing stock on it the same as last season. Would you advise me to?—(M. H. D. Silver, Sutton, Ont.

The plan you are adopting of raising crops in the orchard and pasturing them off with stock is not the best one for the orchard. The plan adopted now by the best orchardists is to give the orchard clean cultivation until about the middle or end of July, then seed down with a cover crop of some kind, preferably a leguminous one, if the ground is in first-class condition.

We found the red or mammoth clover, sown at the rate of 20 pounds to the acre, makes an excellent cover crop, but one of the best crops tried yet is the hairy vetch, sown at the rate of 40 pounds per acre. This plant forms a low dense mass of vegetation, which does not interfere with the harvesting of the apple crop in the fall, and it is so hardy that it goes through the winter in good condition.

All such cover crops should be plowed under first thing in the spring, or if the hogs are allowed in the orchard they may be turned in in the fall after the apple crop is harvested, and what is left of the cover crop can be plowed under in the spring.

The Peach Orchard

L. W.

EARLY in June the peach grower may count with some certainty on the condition of his peach crop. Often a nipping frost about the beginning destroys almost as many peaches as the intense cold of winter, but when this is over, and what is known as the "June drop" has thinned out the superfluous young fruit, those remaining may reasonably be expected to reach maturity.

This is the month for thinning peaches, a job which takes considerable time, but which in many cases pays splendid dividends on account of the increased size of the fruit that remains. Even the Alexander, which has received so much abuse from fruit growers during the past season because of its small size and poor quality, has in consequence of careful thinning grown to double its usual size and brought almost double its usual price.

Thin the fruit until no two peaches touch each other; indeed, some advise thinning until every peach stands 4 to 6 inches from every other peach.

THE FRUIT GARDEN IN JUNE

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

THE ground around the plants in the newly planted strawberry patch should be kept well surface stirred. This not only kills out all weeds whilst small or in the seed leaf, but the loose soil forms a mulch that assists the young plants materially in making growth. Unless the old patch is in very good condition and free from weeds it had better be dug up. Tomatoes, potatoes, beans or corn would be the best garden crops to plant where strawberries have been dug or plowed in.

A better plan still to bring the ground back into good condition after being exhausted as it is by growing strawberries, would be to dig or plow the patch up, harrow or rake lightly, and sow a cover crop of vetches—the hairy variety preferred—or crimson clover could be sown. This cover crop can be dug in late in the fall. A good coat of manure can also be added, especially if the cover crop is not of very rank growth. Strawberry plants should not be planted on the same ground again for three or four years.

PLUMS.

The curculio will be busy on the plum trees as soon as the blossoms are fallen. Spraying plum trees with paris green or Bordeaux mixture is of little use to prevent the mischief of these destructive little beetle like pests. The old fashioned plan of jarring the limbs of the trees and shaking the curculio from the tree into a sheet previously spread underneath to catch them is perhaps the surest way to kill and destroy, and prevent injury by these little pests, as they can be crushed or put into a tin containing coal oil and destroyed when caught on the sheet.

A flat strip of inch board about 2 inches in width and about 2 or 3 feet in length with the sharp edges sawed off, and the sheet or white cloth before mentioned as well as a short heavy club or wooden mallet are the only implements necessary for this operation. Bind one end of the flat strip of board before mentioned with a few thicknesses of old cotton or cloth to prevent injury to the limbs of the tree. Place the end of the strip protected by the cotton or cloth against the limbs of the tree and give it several hard blows with the club or mallet. This will jar the limb sufficiently to cause the curculio to drop into the sheet, which should be spread under the tree before the tree is shaken or jarred. The curculio can then be picked from the sheet and destroyed at once. Shaking the limbs with the hand is not as effective as the jarring method, although some good may be done by shaking the tree.

Another very effective remedy or preventive of attacks of the curculio, especially on trees of moderate size, is to thoroughly sprinkle or dust them with dry wood ashes or chimney soot, or both mixed together. This should be done once or twice a week during June or perhaps early in July as well, directly after the blossoms have fallen and on until the fruit has attained to about half its full size. Early in the morning or late in the evening, when the dew is on the foliage, or after a shower of rain is the best time to dust the trees. A step ladder will be of assistance to reach the larger trees.

Dust bellows can be purchased at seed stores for distributing this and other dry insecticides, but good work can be done with a fire shovel, a piece of tin or shingle, and a little perseverance. Start as soon as the blossom has fallen, do not wait until you see that a lot of the fruit has been stung before you start. If you do the remedy will be of little use. Prevention is the remedy in the case of curculio, as there seems to be no method of applying insecticides to kill the curculio effectually when once they commence operations.

Spraying the cherry trees with kerosene

emulsion is the best remedy for the attack of the aphis. The spraying should be done as soon as the blossoms drop.

Currant and gooseberry bushes may still want looking after for caterpillars. Dry hellebore powder sprinkled on where the worms are is the best remedy, now that the fruit is formed. A small mustary or baking powder tin with small holes punctured through the lid makes a good distributor for dry insecticides.

The young shoots of grape vines should be pinched off as soon as the bunches are formed on them, and before the bunches blossom. Pinch the shoots back so as to leave one leaf or joint clear beyond the bunch nearest the tip of the shoot. Small useless shoots with no fruit bunches developed may be broken or cut out close to the old wood if the growth is too crowded. Leaders or shoots that are wanted to extend the size or growth of the tree should not be pinched back until they have attained a length of 3 or 4 feet.

If mildew threatens to be troublesome sprinkle the bushes with dry powdered sulphur, or "flowers of sulphur," as it is termed. Start the sprinkling on the first appearance of the grey, dusty looking appearance the leaves present when mildew appears. A spraying with Bordeaux mixture directly the blossoms have fallen will often prevent mildew appearing the whole season.

THE SYRAWBERRY HARVEST

L. W.

THE first fruit of the season to bring money into the pocket of the fruit grower, and the one perhaps of the whole season most valued by the consumer, is the strawberry.

For handling the crop no package seems more popular, and none so economical as our 24-quart basket crate, which can be purchased for about 16 cents each complete, with the small quart boxes inside. Women and girls usually make the best pickers and packers, and their skillful fingers not only do the work quickly, but well.

Each picker should have a six-quart picking stand, with handle, which holds six strawberry baskets, while filling. Two pickers to a row, one each side, will work to advantage, and they should be required to pick the rows clean, leaving no ripe berries to waste. Pickers who will not do this, and those who bruise the berries, should be discharged.

At Maplehurst we insist on having our strawberries and cherries handled by the stems only. These fruits are too soft and tender to be squeezed between the finger and thumbs. Carelessness, in these particulars, will often make all the difference between profit and loss in the prices obtained. Besides, an expert picker will snap off as many berries an hour, cutting the stems with the thumb nail, as a careless picker who grabs the berries themselves in her hands. But, if careful picking does take more time, let it be fairly paid for, and let the work be done right.

Don't top the baskets. If you have careful pickers instruct them to turn the stems down of the upper layers so that they may present an attractive appearance. A packer, who keeps tally of the number of quarts brought in by each picker, may do this work and then pack the berries away in the crates ready for shipping.

Not much spraying is done in my locality. Orchards receive very little care. A few are being cultivated through the influence of farmers' institute meetings, and with good results—(Thos. Welsh, Bruce Co., Ont.

Growing Gooseberries and Currants

WILLIAM FLEMING, OWEN SOUND, ONT.

IN growing gooseberries and red and white currants all plants should be inspected in the spring and those parts needing to be pruned or thinned out should be attended to before the leaves are opened. The bushes should all be sprayed thoroughly before the leaves are half opened, and again in about ten days, always doing the work when the weather is fine and dry. If rain falls inside of 24 hours after spraying, the operation should in each instance be repeated until a perfect application is accomplished.

A liberal application of well rotted stable manure should be worked into the ground between the rows and around the bushes. Not a blade of grass should be allowed to exist in the plantation. As soon as the ground is dry after the first heavy rain, let the spaces between the rows and around the bushes be thoroughly raked or scuffled shallow by a hoe till it is in a perfect mellow condition. The same operation should be repeated when the ground is comparatively dry, and after every heavy rain throughout the whole season. Every weed and all grass should be entirely destroyed in order to secure the best results.

If the plantation is large most of the work of keeping the ground in proper condition can be done with less expense by horse with a scuffler and three-cornered harrow. When this is done the bushes should be planted in rows two ways and much farther apart.

If the currant worm appears during the summer one ought always be on the lookout for it. The bushes should be sprayed at once. If the worm is found before the fruit is half size or after it is picked, the solution should be one-half pound of paris green to 40 gallons of water. If the fruit is half formed or more the spraying material should be a heaping spoonful of hellebore to a pail of water.

Cultivating the Vineyard

"THE cheapest method of cultivating the vineyard," said Mr. Murray Pettit, of Winona, recently, to an editorial representative of The Horticulturist who visited his place, "is to cut away from the rows in the spring with a disc harrow as close as possible, then work out what is left with the grape hoe. Mellow and clean the ground between the rows by cultivation, particularly after rains where the land is heavy. About August 1 reverse the disc or use the gang plow and throw the earth to the vines.

"Where I have practiced this shallow cultivation for several years I have had good crops, and find it very much cheaper than the frequent plowing usually given. This cultivation allows the rootlets or feeders to come near the surface, where they get more warmth and nutriment. The grape requires a great deal of heat.

"Where cover crops are sown, which is far the cheapest way to keep up the fertility of a vineyard, one plowing is necessary to turn it under. When rape is used we sow it about August 1 in alternate rows. If sown in every row it prevents picking for some time after dew or rain. The other space can be sown with rye quite late in the season. A treatment that would cause one soil to give good returns might bring about very different results in another. The grower must study the character and requirements of his own land to obtain the best possible returns. My soil is clay.

"From experiments conducted at the station here I find Worden, Delaware, Lindley, Niagara, Concord, Agawam and Catawba the most profitable varieties. Campbell's Early is the most promising of the newer varieties."

Some spray and some do not. I find the best apples are to be found where spraying is done.—(R. Collacutt, Durham Co., Ont.

PRUNING IN JUNE

L. W.

PETER PRUNING KNIFE used to say, "Prune when your knife is sharp," meaning, we suppose, that it mattered little as to the season, so long as the work is done some time. The month of June, however, has one especial advantage over other months, in that it is the chief growing season of the year, and wounds made this month begin at once to heal. The tendency to fruit bearing is also increased by summer pruning, because the removal of the branches of foliage, gorged with elaborated sap, is a check upon the wood growth of the tree.

Very little attention is given in Ontario to summer training of the grape vines, and, as a rule, the vineyards are a hopeless tangle before fruit season. Could our growers give a little more attention to directing the growth in June and July, lopping off a great deal of needless wood, we believe better fruit would result.

COMMERCIAL BULB GROWING

JOHN A. CAMPBELL, SIMCOE, ONT.

IN growing Gladiolus bulbs for commercial purposes the object is to secure good strong bulbs, little attention being paid to flowers.

A good coat of barnyard manure is applied and plowed under in the fall. In the spring, as soon as the soil is dry, the land is again plowed, and it is then time to plant.

Shallow furrows are thrown out with the plow about 2 feet 9 inches apart. Men follow with hoes, the object being to make an even drill, 4 inches wide and about 4 inches deep for the larger bulbs, and somewhat shallower for younger stock. The bulbs are strewn quite thickly in the drill and boys follow and place them, keeping then an inch or two apart, and covering them with hoes. A few days before the new growth appears I run over the drills with the rake, which breaks any crust that may have formed, mellows the soil and keeps the weeds in check.

CULTIVATION DURING THE SUMMER.

Summer cultivation consists simply in keeping the soil well stirred and the plants free from weeds. I first use a harrow tooth cultivator, and when the soil becomes firmer an ordinary one. This year a new two-row pivot wheel cultivator, drawn by two horses, and completing two rows at a single passage, will be used. As soon as the flowers appear the spikes are cut. This is done in order to throw the whole strength of the plant into the bulb.

Large growers in the United States derive considerable revenue from the sale of the flowers, shipping them to the big cities, but in Canada the demand is limited.

PLANT EARLY.

The commercial grower plants as early as he can in order to have a long season to mature the bulb. I generally have most of mine planted in April. A Canadian seedsman's catalogue states that bulbs may be planted from early in May until the end of June. This is all right if some late flowers are wanted, but well ripened bulbs cannot be expected from late planting.

It is interesting to note, from a grower's standpoint, how the improvement in any flower tends to increase consumption, especially in this case. It is to a Canadian, Mr. H. H. Groff, of Simcoe, that we are indebted for the greatest advance made in the Gladiolus.

Last year Mr. Cowee, who grows Groff hybrids in the United States, had 70 acres, and this year he will have 80 acres closely planted. Some five acres or more were grown last year at Simcoe, and instead of importing most of our bulbs as formerly, considerable quantities were exported.

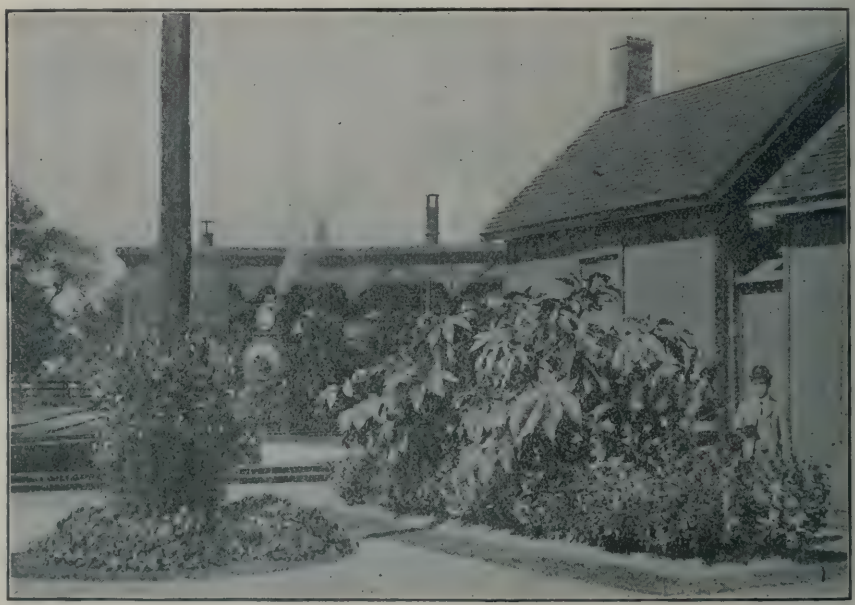
SUMMER TREATMENT OF WINTER WINDOW PLANTS

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

NO one who has even the smallest collection of window plants should be without an ash-bed made of coal ashes, on which to stand plants in pots during the summer, to give them the rest many of them require after having done duty in the window the preceding winter. The best position for the ash-bed to suit most window plants is on the north side of a fence or building. In the event of this position not being obtainable, the partial shade of a tree or shrub will answer the purpose very well. The great point to be secured is to have the plants in a position where they are shaded from the sun for an hour or two before and after the middle of the day.

All the material that is really necessary to make the ash-bed is some coal ashes that have been sifted through a fairly fine sieve. The ashes should be spread to a depth of 3 or 4 inches —or even deeper for large plants— over a space of ground sufficiently large to contain the plants to be placed there. If any of the pots are to be plunged or sunk in the ashes, it would be best to remove some of the original soil to the depth of 3 or 4 inches, filling up the space with coal ashes. By plunging or sinking the pots in the ashes the plants in them will require much less water than if merely stood on the ashes. In plunging pot plants, about an inch of the rim of the pot should be above the surface of the ashes. A rough board frame a few inches in depth could also be put together roughly to hold sufficient ashes for a few plants if thought advisable.

This ash-bed will make an ideal place for standing out or plunging many of the pot plants in during the hot summer months of July and August. Much of the trouble that most window plant growers have from earth or garden worms in flower pots could be avoided if a proper place, such as I have described, were prepared to stand the pots of plants on, as the earth worm will not penetrate through or live amongst coal ashes. Many fine plants are ruined every



A Beauty Spot For Travelers' Weary Eyes.

The idea of improving the station grounds along its line by planting flowers and shrubs was first started by the Canadian Pacific Railway over six years ago by Mr. N. S. Dunlop, then a resident of Toronto. The first year Mr. Dunlop furnished the seed out of his own garden. This year there are between 900 and 1,000 gardens along the railway. The illustration shows the station grounds at Windsor, Ontario. The agents are not forced to grow the flowers but are encouraged and assisted to do so. It is a splendid work that is bringing excellent returns.

season by the drainage in the pot becoming choked by earth worms.

Imperfect drainage in pot plants soon produces a sour condition of the soil, and consequently an unhealthy plant. If the ash-bed were in more common use during summer by amateur plant growers than it is, there would be fewer failures with window plants than there is where plants are stood about on common garden soil, and where the moisture caused by watering the plants is always a great inducement for earth worms to congregate. Gravel or coarse sand are good materials to stand pot plants on during summer, but neither of them are as effective as coal ashes.

FLOWERS THAT WILL BE BENEFITED.

Amongst the plants that will be benefited by being given the position mentioned are Azaleas, Pelargoniums, old plants of Geraniums, Palms, Rubber Plants, Aspidistras, Fuchsias, Cordylines, Cyperus alternifolia (Umbrella plant), most varieties of Cacti, as well as many of the stronger growing winter flowering Begonias and other plants. Most of the pots of the plants mentioned can be plunged—or partially plunged for a few inches, perhaps—in the ashes so as to require very little attention during the summer. The pots of Cacti, however, should not be plunged in the ashes, as there is danger of their getting too much water at the roots. The Cacti plants would do much better if they stood away by themselves. where they could be given special treatment in watering, as a too plentiful supply at the roots is oftentimes the cause of non-success in Cacti culture.

Many of the plants mentioned, such as Palms, Rubber plants, Aspidistras and Fuchsias in flower, make splendid decorative plants for grouping or dotting in shaded positions on the lawn during summer. When these are used for this purpose it would benefit the plants very much if the pots were plunged in the soil nearly or quite to the rim. If about 2 inches of coal ashes were placed underneath the pot it would prevent, to a large extent, the intrusion of earth worms into the pot. A handful of air-slaked lime sprinkled underneath the pot will answer the same purpose, as the garden worm has a great dislike to lime.

A good remedy for earth worms in the soil of potted plants is to give the plants a watering with a weak solution of lime water. The same quantity of lime—about a pound—as before mentioned, put into about two gallons of water, will make a strong enough solution. A teacupful of this applied to the soil once or twice at an interval of a week between each application will usually expel the worms from the pot, and will not injure the plant. The lime should be allowed to settle in the solution and the solution be strained off before using.

HOW TO REST PLANTS.

The best and really only available method of resting most window plants in summer is by placing the plants in a cool, partially shaded position and by giving them a very limited supply of water at the roots, or in the case of some kinds of bulbous rooted plants withholding water altogether from them. This is the case with the bulbs of the Freesia when they are through flowering. The soil in the pots should be allowed to dry gradually until the foliage is quite yellow, and no more water should be given them until they are started into growth again in the autumn.

Many of the herbaceous varieties of the Amaryllis require almost the same treatment but not quite as severe as the Freesia, a little water very occasionally during the summer being best for most varieties of Amaryllis. The Vollotas and evergreen Amaryllis again should be given sufficient water to barely keep the soil moist during summer, as a too dry condition of the soil does not suit these last named.

SWEET PEAS IN THE GARDEN

EDWIN UTLEY, TORONTO, ONT.

SWEET PEAS require plenty of moisture. Some growers recommend pouring a stream of water into the trenches until they are full, and then not watering again until they are dry. I have not found this system beneficial.

The greatest enemy the Sweet Pea has in the hot weather is the red spider, or as some call it, "the mite." These attack from the ground up, and the result of their work is shown by the leaves starting to wither and dry up near the earth, and gradually doing so higher and higher until the vine droops and dies long before it has reached maturity. The best preventive for this is a good sprinkling of water every day, and in the very hot days twice a day.

Fix your hose nozzle so that it will give a moderately fine spray, and get the water all over the foliage, back and front if possible. Never let the ground get thoroughly dry, and never keep it too wet. The quantity of water they require at the roots will depend very much on the soil; if it is sandy and of a very porous nature you can hardly give them too much, if the soil is clay be more sparing, and should the surface cake and become hard (as all clay soils will do), rake the surface gently about an inch deep. If your seeds come up very thickly, pull up every other one, until the plants are not less than 3 or 4 inches apart.

Have the supports for the vines to climb ready as soon as they are 2 or 3 inches in height. Do not, as I have seen many do, leave the plants until they are quite tall, before giving them something for the tendrils to cling to. The very best material for this purpose is brush. If you cannot get this, poultry netting with meshes 1 inch or 1½ inches in diameter is very good, or put in some 2 x 4-inch scantlings every 10 feet in the row, leaving them 6 feet out of the ground, and stretch a galvanized iron wire (about No. 19) on each side of this scantling every six inches. By putting the 4-inch side of the scantling across the rows this will give two lines of wire 4 inches apart, with the peas growing up between.

If the vines are allowed to grow too tall before giving them support they become crooked and cannot afterwards be straightened, and your flowers will have very crooked stems. The rows of wire need not be put on all at once, but can be put on two by two as required. Keep the posts stretched apart by nailing 1 inch by 1½ inch strips (furring) from post to post along their tops.

Sweet Peas will not thrive in a shady place. Let them have all the sun you can. Keep every flower which is fully developed cut each day. Do not attempt to save seed from the vines you are cutting flowers from. If you want to save your own seed, keep one plant of each kind for that purpose, aud don't cut any flowers from that one at all. You cannot hope to get good seed from a plant that is continually exhausting its vitality in its endeavor to replace the flowers you keep cutting away.

RAISING LARGE FLOWERS.

If you want to get extra large flowers for exhibition or otherwise, disbud the same as you would a Chrysanthemum, and only let the number of buds come to maturity that you require. The best time to water is in the evening, but I have never found any damage done even when watering on a hot day with the sun full out. Cut what flowers you want before you begin to water, as the water and sun combined will damage the flowers that are open.

If you find the usual bright green of the foliage is becoming pale your ground is probably not rich enough. When this is the case I have found a heaping tablespoonful of nitrate of soda dissolved in a pail of water and poured along the roots about once a week, very beneficial.

SUMMER CULTURE OF GERANIUMS

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

IF nice plants and a good supply of the bright showy blossoms of these popular plants are wanted during the autumn and winter months, the plants must be specially grown during the summer for this purpose. Even the all-enduring geranium rebels at doing duty in the flower border all summer and being lifted in the fall to do duty in the window during winter as well. Plants treated in this way seldom give good results in winter. This treatment is often accountable for the poor, lanky and almost leafless specimens of these plants one often sees in windows during early fall and winter.

Old plants of geraniums that have become tall and unsightly looking can by proper treatment be made into nice bushy plants by autumn if started on now.

The plants should be first cut severely back to within a few inches of the old, hard wood. After the cutting back process the soil in the pots should be kept only moist, not soddened with water. As soon as growth commences, which should be in three or four weeks, the plants should be shaken out of the soil they are in and potted into a pot one or two sizes smaller than the one they were in. This process is called potting back by professional plant growers. The soil used when the potting back is done should be composed of two parts of loamy potting soil and one part of fine sharp sand.

If the plant has a large supply of roots it may be necessary to shorten them so as to get the remaining roots into the smaller sized pot. Water the plant well once after this repotting, but do not give it too much water until the growth has well commenced. The soil should be kept moist, but not soaked with water. In three or four weeks time the plant should have made a growth of several shoots 2 or 3 inches in length. When the growth has attained to about the length mentioned the plant should be repotted into a pot two sizes larger, or about the size it was originally in, and a good rich loamy compost used with only a small admixture of sand in it. A few broken pieces of pot should be used for drainage when repotting.

HOW TO WATER THE PLANTS.

Water the plant once so as to moisten all the soil, then give water only when the soil

Cutting Back the Geranium.

When it is desired to keep an old geranium plant for use in the winter time it is well to cut it back during June. It can be grown in the open garden during the summer.

appears dry. When the plant has commenced to make good growth more water can be given it as required. An old plant of geranium treated in the manner I have described can, if it is cut back any time in June, be grown into a nice specimen in time to take into the window in autumn. The plant can be grown as described out in the open garden during summer. It may be advisable, for ease of management, to plunge the pot into coal ashes, as recommended in another article in this issue.

Young plants of geraniums in three and a half or four-inch pots, the same as used for planting out at this season in beds or borders, can also be grown on specially for winter flowering. The treatment is a little different from that described for growing on old plants.

The young plants should be at once potted into 6 or 7-inch pots in good loamy potting soil, and the pots plunged to the rim in the open ground. An inch or two of coal ashes should be placed underneath the pot before it is sunk into the ground, or the pot can be plunged altogether in coal ashes. The plant should be well watered once after re-potting, but not over watered. More water can be given after the plant has well started into growth.

PINCHING BACK.

About every two or three weeks, until about the first week in August, the tips of the young shoots or growth should be pinched out. This can be done at any time until August, when the young shoots are 5 or 6 inches in length. By pinching out just the tips of the shoots the plants are made to grow bushy and shapely, as well as growing a larger number of shoots than they would if the pinching process was omitted. All the bloom buds should be pinched off as soon as they appear. The plant should not be permitted to open a flower bud until September, when the flowers should be allowed to grow.

In September, before frosts appear, the plant can be lifted into the window or under the cover of a veranda on cold days and nights, until it is taken permanently into the window. If the pot is very full of roots in the fall it may be necessary to pot it into a slightly larger pot, but as a rule a 7-inch pot is large enough for almost all geraniums grown in the way I have described. Almost any of the ordinary bedding varieties of geraniums treated in this way make good winter flowering plants, and will give good results with their bright trusses of bloom if placed in a bright sunny window during the winter and given only ordinary care and treatment.

GOOD VARIETIES FOR WINTER FLOWERING.

Amongst the many single flowering varieties suitable for winter flowering are Mrs. E. G. Hill, salmon; W. A. Chelfant, crimson scarlet; Gettysburg, magenta scarlet; Lucreece, bright pink with white centre; Phyllis, pale salmon; Madonna, pale pink. Amongst the double and semi-double varieties are Thomas Meehan, pink; Jean Viaud, pink; Mme. Jaulin, magenta scarlet; Hermine, white; La Favorite, white; Mme. de la Rue, magenta pink; M. A. Bouleans, scarlet; Marquis de Gallard, rosy-cerise shaded. Many of the Bruant type make strong growing pot plants, Bruant, Garden Director, Le Contres and Alphonse Ricard being amongst the best for pot culture.

The bronze and variegated leaf varieties include the Mme. Saleroi, Wm. Languth, Marshal McMahon and Happy Thought, which are well adapted for growing for window culture. All of the fragrant leaved geraniums are also suited for the method of summer culture described.

There is a good lawn in front of our school. By the side of the school we have flowering shrubs and small flowers. Ferns have been planted around the outside fence, and on the whole we try to keep our grounds as beautiful and as up-to-date as possible.—(F. Downey, Port Perry, Ont.

You cannot grow a Spy apple in any cuddled-in place, where it will lack plenty of air and sunshine.—(Wm. Rickard, Newcastle, Ont.

Severe pruning and judicious fertilizing are one of the secrets of success in fruit growing.—(J. S. L., Bartonville, Ont.

ARRANGEMENT OF THE CITY GARDEN

J. E. NORTHWOOD, ONT.

THE gardener who has as his object the beautifying of his home should direct his efforts more to the massing of color and the effective grouping of plants than to the cultivation of prize specimens. The average city gardener will not allow the space which is required for the production of perfect plants and at the same time permit the massing of color and foliage that is required to cover unsightly objects, break the straight lines of fences, round off abrupt corners and give an artistic effect to the grounds.

Perhaps the most useful plants to overcome the disadvantages of a city garden are the flowering vines. Of these the different varieties of clematis, the Japanese hop, some varieties of gourds and also the morning glory will be found very satisfactory. Another very good climber is the Japanese Dolichos or Hyacinth bean, which has a very luxuriant growth, and which in August is covered with beautiful spikes of sweet pealike flowers of pure white or dark violet coloring. After flowering shrubs, such as the Hydrangea paniculata, Deutzia Lemoini, Azalea mollis, Spiraes or the common white snowball, if kept free from aphis, can be used to good advantage in a small garden. A good plant of the Ricinus or castor oil plant, with its tropical growth, is also useful for its foliage effect.

GRASS ADDS TO THE EFFECT.

A plot of well kept grass, even if very small, adds greatly to the appearance of a garden and shows off to advantage the shrubs and plants if they are arranged with due regard to their habit of growth. Strict formality and set designs in a small garden are entirely out of place. A much better effect is obtained by simply endeavoring to show the plants to their best advantage, at the same time keeping a certain amount of regularity in the arrangement and also paying considerable attention to neatness.

One of the Prize Gardens in the Lady Minto Competition.

Great interest has been taken in Ottawa during the past few years in the garden competitions inaugurated by Her Excellency Lady Minto. A portion of the gardens of Mr. J. E. Northwood, one of the winners in last year's contest is here shown. The flowers to be seen are a collection of some of the easiest grown and freest flowering plants; such as petunias, gladiolis, coreopsis, some of the better class of perennial phlox and some others, all of easy culture and effective colorings.

June has been found the most satisfactory month for starting city garden competitions. By that time the gardens should be in good condition, with most plants well advanced in growth and making a good show of bloom. May is too early, as the majority of flowers then in bloom are spring flowering bulbs, and the gardener who spends the most money is almost sure to have the best showing.

THE SELECTION OF BEDDING PLANTS

E. F. COLLINS, TORONTO, ONT.

THE selection of bedding plants for the bed or border is often a source of worry to the experienced gardener, and more so to the amateur and small cottage gardener. The chief points to bear in mind are to procure plants that will grow in the position you wish to plant them, and also to make a bright effect and have a sweet fragrance from a very limited number of plants.

For a small bed on the lawn a few scarlet geraniums in the centre, with a row of snapdragons next, and a row of sweet alyssum on the outside, with about three tobacco plants (Nicotiana Affinis) dotted in between the geraniums, will give a fine effect and also a sweet fragrance in the evenings. If a lot of flowers are wanted for cutting, in place of the above use zinnias, asters, stocks, phlox, with dwarf nasturtiums on the outside, all of which can be bought very cheaply by the box, which usually contains about a dozen plants each.

AN ATTRACTIVE ARRANGEMENT.

Another pretty bed is made by using a few dark coleus in the centre, then a row of pink geraniums (Madame Balney is the brightest pink), and for the outside row use silver leaf geraniums (Madame Saleroy), sweet alyssums, or blue lobelia. An odd corner in the back garden can be made very attractive with a very few plants by using a couple of cannas with two or three tobacco plants (Nocotiana Affinis) at the back of the plot, then a plant or two of Salvia Splendens, or as it is commonly called, scarlet sage, next a few asters mixed with stocks. Place these two together, as the stocks will be over and can be pulled up by the time the asters want more room. Next to them put a few snapdragons and phlox (Drummondii) in the front. This will give a variety of flowers to cut from the whole summer and until frost.

Tuberous Begonias are also very effective and do well when planted in a partially shaded location and freely watered. They are fairly cheap and easy to procure. Two or three dozen hills will give a fine show if matted together in a small bed.

The well known Begonia Vernon, and the more dwarf variety, Ergoldii, are also very pretty, and they usually produce flowers of all shades, from pure white to dark pink and red.

If you have a woodshed or board fence, don't forget to plant a clump of rudbeckia (Golden Glow), a couple of cobœa scandens, with a few plants of gaillardias, then a few petunias in the front, and you will transform an ugly view from your window into a very pleasing one and at small cost.

GOOD USE FOR THE FILTHY WEED

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

IT is often difficult for plant growers to secure tobacco suitable for making a solution of tobacco water to be used as a remedy for either the green or black aphis that infests so many varieties of greenhouse and window plants. The ordinary commercial plug tobacco is of very little use.

By sowing a few seeds at this season, of some of the coarser growing tobacco or Nicotiana, a supply of tobacco leaves can be secured that will last the whole season. The seed should be sown on rather light soil, and the plants set out as soon as large enough into some good rich garden soil, about 18 inches or 2 feet apart. The soil around the plants should be well surface stirred.

In early autumn, before frost, the plants should be cut off close to the ground and the whole plant hung up in an open airy shed, where it can stay all the winter if kept

dry. The leaves of the tobacco grown in this way will make a splendid tobacco solution to destroy plant destroying insects, especially green and black fly or aphis, and thrip that infest rose bushes, grape vines, ferns and many other plants.

The best variety of tobacco to grow for this purpose is the Connecticut seed leaf or some of the coarser growing kinds of tobacco. The purple flowered Nicotiana is about the best of the decorative varieties to grow for making the tobacco solution.

FLOWER AND PLANT LORE

EDWARD TYRRELL, TORONTO.

FROM all parts of the world the historians of bygone centuries have contributed their accounts of the rich assortment of flowers in demand for ceremonial purposes. Associated with the customs which had important significance in the historic days of Greece and Rome, we have abundant details of the skill and care displayed in procuring for religious purposes the choicest varieties of flowers.

The profuseness with which flowers were used in Rome during triumphal processions is proverbial, in allusion to which Macaulay writes,

> "On they ride to the Forum
> While laurel boughs and flowers
> From house top and from windows
> Fell on their crests in showers."

and the Coronation, which we now call the Carnation, was a favorite.

Carnation Dianthus, from Dios *divine*, Anthos, *flower*—divine flower, flower of love, July flower. Up to the beginning of the 16th century writers gave it the name Coronation, in illusion to its use in chaplets or from the dented or toothed above like to a little coronet. Pliny gives a long list of garland flowers used by the Romans and Athenians in which the Coronation held such a high place that it was called by the name, Flower of Love.

After the 16th century, or thereabouts, the word Carnation came into use as expressive of the color, the hue or color of one's skin or flesh, a light rosy pink, but sometimes used for a deeper crimson color, as in the Carnation flower. This carnation color is often used by painters to express the various tints of their colors, and when this is done natural, bold and strong, and as well colored, they say of the painter that his carnation is very good.

THE FLORISTS LIKED IT.

It is not known how soon it became a florists' flower, but it must have been early, as Gerard, who was contemporary with Shakespeare, says "a great and large volume would not suffice to write of every one in particular, considering how infinite they are, and how every year, and every climate and country bringeth forth new sorts, such as have not heretofore been written of, some whereof are called Carnations, others Clove Gilloflowers, some Sops in Wine, some Pagiants or Pagion Color. Also a Gilloflower with yellow flowers, the which a worshipful merchant of London, Mr. Nicholas Lite, procured from Poland, which before that time was never seen nor heard of in these countries. This great Carnation Gilloflower hath a thick round woody root, from which riseth up many strong jointed stalks. set with long green leaves by couples, on the top of the stalk do grow very fair flowers of an excellent sweet smell and pleasant carnation color, whereof it took its name, Cariophyllus maximus multiplex (the great double carnation).

The Carnation belongs to the Pink (Dianthus) family, and on account of its delicious fragrance, closely resembling that of the Clove of Commerce, or Clove Pink (Dianthus cariophyllus), the latter being the generic name of the Molucca Tree, from which the spice is obtained.

FORCING VEGETABLES FOR EARLY MARKET

A LINE of work that promises to develop into an important industry has been undertaken by a number of the leading fruit growers situated along Lake Erie in Essex county. It is the raising of vegetables in greenhouses and under cotton. By planting the vegetables early in March it is possible to force them so that they will be ready to market in June, when vegetables are scarce and realize high prices.

In ordinary years cucumbers raised in this way are ready to market about June 1, which is some six weeks earlier than the regular crop. Tomatoes are ready about the second week in June and can be sold until the regular crop comes in during the latter part of July. "So strong is the demand for fruit raised in this way," said Mr. H. W. Dawson, the well known commission dealer of Toronto, "I am satisfied there is a good opening for people favorably situated who will take up this work. The vegetables marketed by Ontario growers at this season have been of excellent quality and have created a demand which is likely to grow. The vegetables sold at this time do not meet with much competition from American growers, as the period comes between the arrival of Florida crops and those from Mississippi."

Combination Greenhouse and Cotton Frames, No. 1.

In Essex County, as described in this issue, the forcing of vegetables for the early markets is becoming quite a business. The vegetables are started in greenhouses early in March. Later, they are set out in cotton frames and sometimes are finally set out in the open. The forcing houses here shown are on the farm of Mr. J. D. Fraser, of Leamington, who has undertaken this work on quite an extensive scale

NEW HOUSES ERECTED.

An editorial representative of The Horticulturist visited Leamington recently, where a number of these greenhouses and cotton frames have been erected this spring. About 20 growers are raising vegetables this year. Two years ago there were only four or five. One of the largest plants is owned by Messrs. Hillborn & McLachlan, of Leamington, who were the first to take up this work. Mr. Hillborn started seven years ago with a small greenhouse 11 x 24 feet in area. He now has three greenhouses about 18 x 50 in area and 2,000 yards of cotton frames. He is also using a large number of glass frames. This year Mr. Hillborn has put up two new forcing houses 200 feet long and 10 feet in width, and a third one 10 x 100 feet.

"The idea that work of this nature might be undertaken profitably," said Mr. Hillborn to The Horticulturist representative. "first came to me when I noticed the nature of the soil in this section, much of which is a light sand, containing a large amount of mineral deposit, including iron. This causes a quick maturity of fruit and vegetables. My start was made on a small scale, but the results obtained were sufficiently encouraging to warrant me enlarging my operations. During the first two years I was the only grower, finally one or two others started, until two years ago there were five; this spring there has been a marked increase in the number raising vegetables in this way."

WHEN THE SEED IS STARTED.

"During early March," continued Mr. Hillborn, "the seed of the tomatoes and cucumbers is started in the greenhouses.

When the seedlings have four leaves, which is usually about the middle of March, they are transplanted into larger boxes and given more space. About the last of March the tomatoes are again transplanted into pots and divided boxes, so that each plant has four inches of space to grow in. Cucumbers are only transplanted twice, the second time when they have six or seven leaves, or about the first of July. They are then put into large boxes and pots.

"This year the third transplanting of the tomatoes was late, taking place from April 20 to the second week in May. At this period they were taken out of the greenhouse and placed under the cotton frames to harden. The tomatoes were planted in the open about the middle of May, although some seasons this work can be done much earlier. Cucumbers are kept under cotton all the time. During June the cotton is sometimes taken off for short intervals. It is no easy matter to make a success of the cucumber crop, as it requires a large amount of water. I frequently use 100 barrels of water at one application on a quarter acre of land.

THE CULTIVATION GIVEN.

Tomatoes in the open are given the same cultivation as corn. About May 15, or sooner, the plants are cultivated with a horse cultivator and later with a hoe. This cultivation is conducted thoroughly until the crop is being picked freely, about July 15. The ground is worked over once every week or ten days. In wet seasons less cultivation is necessary. Only shallow cultivation is practised, as deep cultivation cuts the roots of the plants. On this account it is going out of favor, not only in vegetable growing, but in fruit raising as well.

The land where I raise my vegetables is so rich little manuring is done. For melons I use barnyard manure well decomposed. The second year I follow with tomatoes, which absorb any of the fertilizer not taken up by the melons. Where the land is very rich the tomatoes are likely to make too large a growth. To maintain the fertility of the soil cover crops are sown as soon as the vegetables are picked. Rye, oats or turnips make about the best and prevent washing of the light soil.

The crop is all sold to individual buyers located in about 20 towns in western Ontario. Every week I send them quotations. They order what they feel they can handle, and the surplus is sent to commission men in the leading cities. Four or five of these buyers in the different cities are telegraphed and the vegetables are sent to the sections where the best prices are offered."

CELERY GROWING

H. R. ROWSOME, BURLINGTON, ONT.

FOR late celery plants that have been sown in the field and thinned out to 100 to the foot, must be set out during the first week in July in order to reach marketable size by the last of October. Being grown so close together they have not many fibrous roots and do not get as quick a start as those plants which have been transplanted into hot beds. They ought to be as thick at least as a lead pencil so as to have sufficient body to live through hot July days until they get rooted. Of course the plant must be placed only in the moist earth, which must be very firmly pressed against it. Plants that are to be set out after the middle of July are grown to a large size in cold frames after the manner of those transplanted for early celery.

Early celery. *i. e.*, the self-blanching kinds, such as Paris Golden and White

Plume, are blanched by placing boards one foot wide snugly up against each side of the row. If earth were used before September the celery would rot. For late celery the self-blanching varieties do not need blanching, as they blanch all too soon in the storehouse. The green and red celeries are whitened by pulling earth up against the row with a dandelion rake (about 16 inches wide) after the earth has been loosened up with a cultivator.

If the celery is to be kept a long time it ought not to be blanched higher than 2 or 3 inches from the root, because blanching is the first step towards decay. Then, when it is kept a long time in the cellar it gradually blanches itself. Most varieties require some earthing up to make the heads compact. This earthing up is greatly facilitated if the plants are set out in a shallow trench or depression made by a double mould board plow; but of course the plants must be large or they would be smothered out by the washings from thunder storms.

SHOULD BE LEFT OUT.

Celery, for late winter use, ought to be left out until just before the ground freezes because two weeks of warm weather while it is in the storehouse will destroy it. It will stand a great deal of frost if it is banked up high enough to keep the hearts from freezing.

In storing celery the main object is to keep it from heating. The usual method is to stand it up in stalls, *i. e.*, between the boards that have been used for blanching; they stand on edge about a foot apart. If it is packed in very tightly it will heat; while if it is not pretty snug, it will all topple over in one direction. and the heads, lying upon each other, will rot, besides the hearts grow upwards at right angles to their respective heads. There is no danger of the heads wilting, as the celery sweats and gathers moisture. This method is further improved by packing straw or leaves in with the tops so that the tops will be tight and the stalks loose. The tops are allowed to freeze. Another way, which is too laborious to practise on a large scale is to place the celery in earth.

If the celery heats the outside stalks turn yellow; there is the odor of mouldy hay and your crop rots in two or three weeks. If you try to market it the heads have to be trimmed down to a very small size and the price is correspondingly low. It is easy enough to grow celery, but very few can keep it until the middle of March in such a condition that it does not have to be trimmed down almost to the hearts; and celery is hard to sell in the early winter.

JUNE WORK IN THE VEGETABLE GARDEN

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

A SOWING of peas and beans may yet be made for late crops. Peas are not, however, a very reliable crop sown now, unless the season is very favorable. The green varieties of dwarf beans give the best results for late crops, and are of more service for pickling or salting down if there is a surplus of them, than are the yellow wax-beans.

A row or two of late carrots and beets sown about the end of June or early in July will, if the season is at all favorable, produce better roots for winter use than the early sown crops. Corn can be sown at any time during June, and will come in before frost generally. Late cabbage and cauliflower can oftentimes be planted to advantage between the rows of early potatoes before the latter are dug. A week or two can be gained in this way, as sometimes there is scarcely time for cabbage and cauliflower to head if they are not planted until after early

potatoes are dug. Late cabbage and cauliflower should not be planted too near together. Two feet between the rows and from 18 to 22 inches apart in the rows is about the proper distance. Some of the larger growing kinds of cabbage require 2 feet each way apart. Try some Savoy cabbage; you will not care for the quality of the flat Dutch cabbage for cooking purposes after trying the Savoys. These latter require less cooking than the ordinary cabbage, especially after a few sharp autumn frosts.

Cotton Frames Used For Vegetable Growing, No. 2.

The first person in Essex County to undertake the growing of vegetables under cotton for the early summer markets was Mr. J. L. Hilborn, of Leamington. Starting on a small scale Mr. Hilborn has gradually enlarged his plant until now he has quite extensive cotton frames and greenhouses.

AN INSECT PEST.

The cabbage worm or caterpillar is very troublesome in summer time. Commercial growers spray the plants when young with a weak solution of paris green. A teaspoonful of green to two gallons of water is about the strength of the solution. This should not be used very late in the season, and should be thoroughly mixed before using. A safer solution to use, but not as effective, is a solution of salt and water. Two tablespoonsful of salt dissolved in a gallon of water and sprinkled over the leaves once or twice a week will help to keep down the cabbage worm or caterpillar. Dusting dry pyrethrum powder over the plants is also a preventive of these ravenous grubs.

GET AFTER THE BUGS.

To prevent squash bugs appearing on squash or vegetable marrow vines, the plants should be sprayed with kerosene emulsion two or three times from the time the plants are in flower first until the first fruit has well formed. Soot or wood ashes sprinkled on and around the stem of the plants, particularly on the underneath side of the foliage, every few days during the hot weather, will often prevent the attack of the squash bug. The ashes or soot should be dusted on when the plants are damp with dew or after a rain. Prevention in this case seems to be the only remedy for these pests, as it seems to be impossible to get rid of these detestable and destructive bugs when once they get a strong hold on the plants. Partial shade, plenty of moisture and a good rich open soil are necessary elements for the successful culture of vegetable marrows or squash. They will often grow splendidly on an old half decomposed rubbish or manure pile, making an unsightly spot sometimes one of utility and even of some slight picturesque beauty.

Keep the hoe going during the hot dry weather. The hotter the weather the more the crops will benefit by the ground being surface stirred. Water plants in the evening or early morning if possible, but water them at any time rather than allow them to suffer for want of water.

The Canadian Horticulturist

The Leading Horticulturist Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance; entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share in its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Postoffice or Money Express Order, or Registered Letter. Postage stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will coutinue members.

5. Change of Address—When a change of address is ordered both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in Towns and Cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

TRANSPORTATION OF FRUIT.

Probably no class of the community who may have occasion to use the railroad and transportation companies of the country in the ordinary course of their business with the public, have a greater claim upon these public carriers for consideration and assistance in their efforts to satisfy their customers, than the fruit growers of Ontario. From the very inception of his effort to engage in the production of fruit, the grower is beset on every side with difficulties and obstacles that might well appal the most courageous and energetic. If "Hope deferred maketh the heart sick," under any circumstances it is certainly true in the fruit industry.

After having run the gauntlet of unsuitable soil and atmospheric conditions, and the liability to have had worthless varieties foisted on him by the unscrupulous "tree agent"; after having battled with the myriad fungous diseases and insect pests, and escaped the early and late frosts, he secures a good crop of fruit, the expressman or freight handler in a very short time often reduces the results of his care and efforts to a more or less damaged and demoralized condition. Even should his fruit pass through this ordeal in a fairly satisfactory manner it is liable to be delayed in transit for hours or even days, until finally it reaches its destination in a rotten and worthless condition.

For this so-called special service the patient and long-suffering fruit grower is charged the highest rates possible. Surely the time is ripe for some relief in this respect. It is to be hoped the presentation of the facts and conditions of this trade to the proper authorities, as has been done, is all that will be required to secure a substantial improvement in the service and in the handling of this rapidly increasing business. A tariff of charges is needed that will commend itself to the public as being at once reasonable and in accordance with the principles of justice and equity. Now our fruit growers have put their hand to the plow they must not turn back.

THE FRUIT INSPECTION ACT.

It is interesting sometimes to "see ourselves as other see us." The United States Consul in Edinburgh reports to his government that the system of fruit inspection adopted in Canada, and subsequently renewed at British ports, has served as a guarantee to British buyers, of Canadian fruit. Canadian apple imports as a result, he says, are gaining a very strong position in Scotch markets, and in some cases displace United States supplies.

Coming from such a source this statement is a strong endorsement of both the wisdom and efficacy of our fruit inspection act. The views of the two British apple buyers expressed in this issue of The Horticulturist further emphasize this belief. Already this act has resulted in much good to the Canadian fruit trade. It does not seem unreasonable to expect that, after it has been in operation a little longer and its workings are still better understood on both sides of the Atlantic, its benefits will become even more apparent. As for our cousins to the south it will probably be a long time before they will adopt such a law. Action by individual states will not be effective, and it will be a difficult matter to induce congress to deal with the situation.

Unknown seven years ago in Ontario, the San Jose scale is now one of the worst enemies that the fruit growers have to contend with. When it crossed the Niagara frontier the entomologists, knowing its evil reputation, at once raised the alarm, but the majority of the growers made light of their fears and made no attempt to keep the scale from their orchards. The result is that to-day so serious have been the ravages of the scale, thousands of what would have been fine bearing trees are worthless. Many once valuable orchards are being torn up by the owners. The excellent work of the Ontario department of agriculture in tracing and destroying infected stock sent out by nurseries, appointing inspectors to assist in the control and eradication of the disease, and in meeting part of the cost of spraying material has undoubtedly been of great value to the fruit growers of the province. It is encouraging to hear that the fruit growers are now thoroughly alive to the seriousness of the situation and that there has been a great increase in the amount of spraying done to check the spread of the scale.

The big fruit, flower and honey show it has been decided to hold in Toronto next November, affords a splendid opportunity for the fruit growers and florists of the province. Both our fruit and our floral interests require advertising. Their importance is not sufficiently understood. The public at large needs enlightenment. We have all heard much of the magnitude of our dairy industry. Live stock men make a big stir each year at the winter fair and through their annual sales. Fruit growers and florists, but more particularly the former, should push themselves to the front in a similar manner and then stay there. By making a display of fruit and flowers next November, which will truly represent the province, they should attract sufficient public attention to do their cause much good. The Department of Agriculture deserves credit for starting the idea and for its financial assistance. The people directly interested now have the matter largely in their hands. The enthusiasm already displayed augurs well for success.

Many of the horticultural societies of the province are not doing good work. Some, in fact, do not even seem to know what they are expected to do. No attempt is made to hold regular meetings or exhibitions of fruit, flowers and vegetables; such a thing as a distribution of seeds is unheard of by the members, and apathy widespread seems to exist. This should not be. The excellent work being done by a number of societies, such as those at Ottawa, Perth, Guelph, Toronto, St. Catharines and Hamilton, shows what can and might be done.

The suggestion, therefore, that the horticultural societies of the province shall appoint delegates to attend the fruit, flower and honey show in Toronto next November, that they may meet to discuss matters of mutual interest seems an excellent one. It should then be possible to form a provincial association and arrange for the holding of similar meetings annually. Keep this matter to the frout; it is worth careful consideration.

The objections expressed in this issue by leading buyers to the use of boxes for the shipping of apples will come as a surprise to many fruit growers. It is hard to attribute this dislike to anything more than conservatism in regard to the changing of the old order of things. Boxes have not yet become established as a commercial package and have yet to overcome many objections that promise to disappear in due course of time.

The Horticulturist finds it is short of copies of the January, February and March numbers published in 1901. Any readers who have spare copies of these issues in good condition will confer a great favor by returning them to this office.

I have enjoyed The Horticulturist very much the short time that I have taken it. It has been greatly improved of late.—(Stewart Burns, Prince Edawrd Island.

GROWERS ANXIOUS TO ORGANIZE

(Continued from Page 237.)

By-laws of the St. Catharines Cold Storage and Forwarding Co., Limited.

Whereas, the directors of the St. Catharines Cold Storage and Forwarding Company, Limited, deem it expedient that certain by-laws for regulating the affairs of the company should be made; now, therefore, be it enacted and it is hereby enacted,

MEETINGS.

1. That the annual meeting of the shareholders of the company shall be held at the office of the company on the fourth Thursday in the month of January in each year.

2. That a general meeting of the shareholders may be called at any time by the directors whenever they may deem the same necessary for any purposes not contrary to law or the letters patent of the company, and it is incumbent on the president to call a special meeting of the shareholders whenever required so to do in writing, by one-tenth part in value of the shareholders of the company, for the transaction of any business specified in such written requisition and notice calling the meeting.

3. That notice of the time and place for holding the annual or a general meeting of the company must be given at least ten days previous thereto, in some paper published in the city of St. Catharines, or by mailing the same as a registered letter, duly addressed to each shareholder at least ten days revious to such meeting, or by a personal notice delivered to each shareholder by a director or officer of the company. * * * * * * *

5. That at general meetings of the company every shareholder shall be entitled to as many votes as he owns shares in the company, and may vote by proxy. No shareholder, however, is permitted to purchase more than 20 shares of the company's stock.

6. Questions at meetings shall be decided by a majority in value of the shareholders present, either in person or by proxy, and in case the number of votes are equal the president or chairman shall have a deciding or casting vote.

DIRECTORS.

7. The affairs of the company shall be managed by a board of five directors, of whom three shall form a quorum.

8. That the president and vice-president shall be chosen by the directors from among themselves at the first board meeting after the annual meeting.

9. That the president shall, if present, preside at all meetings of the company. He shall call meetings of the board of directors and shareholders when necessary, and shall advise with and render such assistance to the manager as may be in his power. In his absence the vice-president shall have and exercise all the rights and powers of the president. A director may at any time summon a meeting of the directors.

10. That questions arising at any meeting of directors shall be decided by a majority of votes. In case of an equality of votes the chairman, in addition to his original vote, shall have a casting vote.

11. That the secretary shall keep a record of the proceedings at all meetings of the board and of the shareholders of the company, and shall be the custodian of the seal of the company and of all books, papers, records, etc., belonging to the company, which he shall deliver, when authorized so to do by a resolution of the board, to such person or persons as may be named in the resolution.

12. That any shareholder holding not less than five shares of the company's stock, and not in arrears for payments on calls upon his stock, may be elected a director.

13. That the directors shall hold office for one year, and until their successors shall be elected.

14. That in case of the death of a director, or his being unable to act as such, or his ceasing to be a shareholder, the vacancy thereby created may be filled for the unexpired portion of the term by the board from among the qualified shareholders of the company.

15. That the company shall have a corporate seal of such design as the board may determine, which seal shall, whenever used, be authenticated by the signature of the president and secretary-treasurer.

16. That the board shall from time to time fix the salary or wages of the officers of the company.

17. That the sum of one dollar per meeting be paid to each director for his services.

18. That the board shall have full power to fix the amount of remuneration to be paid to any member of the board who may act in an official capacity.

STOCK.

19. That calls upon subscribed stock shall be made from time to time as the board may determine. No call shall exceed 25 per cent. of the subscribed stock, and there shall be an interval of at least 30 days between calls.

20. That the board shall have power to summarily forfeit shares and the money paid on them, upon any call having remained unpaid for a period of six months after it shall be due and payable, and such forfeited stock shall thereupon become the property of the company and may be disposed of in such manner as the company in general meeting think fit.

21. That receipts for payment of calls shall be issued from time to time as such payments are made, but stock certificates shall only be issued when shares are fully paid up. * * *

22. That shareholders may, with consent of the board, but not otherwise, transfer their shares, and such transfers shall be recorded in a book required for the purpose. * * *

ACCOUNTS.

23. That the directors shall cause true accounts to be kept of the stock in trade of the company, of the sums of money received and expended by the company, and the manner in respect of which such receipt and expenditure takes place, and of the credits and liabalities of the company. * * * * * *

25. That once at least in every year the directors shall lay before the company in general meeting a statement of the income and expenditure for the past year. A balance sheet shall be made out every year, or oftener if desirable, and laid before the company in general meeting, and such balance sheet shall contain a summary of the property and liabilities of the company arranged under the necessary headings.

BANK ACCOUNT.

26. That a bank account shall be kept in the name of the company at a bank to be selected by the board, and all checks shall be signed by the secretary-treasurer and president of the company.

Three other rules provide for the appointment of auditors, the borrowing of money, and the making of changes in the by-laws.

AN ENGLISH FRUIT BUYER'S VIEWS

J. B. THOMAS, COVENT GARDEN MARKET, LONDON, ENG.

If Canadian growers desire to stimulate the British demand it is necessary they should grow only the best varieties of apples.

As most of the standard varieties are very prolific, it seems a waste of time to cultivate sorts that will never be of any use for export. In indicating the best kinds to grow, I can almost confine myself to four, viz., Baldwins, Golden Russets, Spys and Greenings.

There has been an idea prevailing for some time that boxes are superior to barrels for packing fruit. This is a great mistake. Notwithstanding the fact that the London market takes every year hundreds of thousands of boxes of apples from California, Australia and elsewhere, yet for Canadian apples there is but one package, and that is the ordinary hardwood barrel. There is no question that apples, if properly packed in barrels, will carry better than in any other way.

There is another important point to be considered, and that is the shipping of the fruit and the necessity of employing only the best steamers. In my experience there has been more money lost by apples being shipped in slow ill-ventilated steamers than through bad markets.

Of late a marked improvement has been apparent in the Canadian methods of growing, packing and marketing apples. The fruit inspection law in Canada has proved very beneficial, and also the different methods of packing.

Although the Nova Scotian apples have always been properly graded, yet it is only now that Ontario has taken this up generally. The result is it is much more satisfactory to buyers to know that the contents of the barrels are something like what is shown on the heads and that the middle part is not filled up with inferior and common grade fruit.

DEFINITION OF A NO. 2 APPLE

AN APPLE SHIPPER.

The committee appointed by the American Apple Growers' Congress last season recommended as a definition of a No. 2 apple the following :

"No. 2 apples may be ¼-inch less in diameter than No. 1 apples, and not over 20 per cent. of the apples affected by defacement of surface by scab, dry rot, worms or other defects, shall be hand picked from the trees and not bruised or skin broken, shall be of a bright and normal color and shapely formed."

This definition of a No. 2 apple is of the very greatest interest to the Canadian apple grower. We have in Section 6 of the Fruit Marks Act a definition of No. 1 fruit that is in every respect satisfactory, and there is a constant demand for a definition of a No. 2 ; but the difficulty is that language appears to be hardly definite enough to mark out clearly the degree of imperfections that will be allowed in a No. 2 apple, because it is of course understood that a No. 2 apple is a defective apple.

The above definition of the Apple Growers' Congress has also been adopted by the International Apple Shippers' Association. I can not help thinking this definition is not workable. The reference to the size of the apple might pass, though it is little better than using the phrase, "Too small to grade No. 1." But the most serious objection is the admission of 20 per cent. of defective apples, with little or no regulation as to the degree of imperfection in the individual fruits. The inference is that the remaining 20 per cent. would be free from scab, dry rot, worm holes, or other defects. Virtually, then, 80 per cent. would be No. 1 apples except in the matter of size. Now, size is of the least consequence of the qualities mentioned, so that practically a No. 2 barrel would consist of two grades, viz., fruit with worm hole and scab to the amount of 20 per cent., and 80 per cent. perfect fruit slightly smaller than No. 1.

This violates the first principle of true grading, in permitting different qualities to go in the same package. I, therefore, consider that, so far from making matters better, this definition makes matters worse. In looking for a description of a No. 2 barrel, the individual apples must be taken into account, and if certain blemishes are permitted they must be permitted in each specimen. It will not do to distinguish between certain specimens in the same package, except so far as to make a reasonable allowance—say 5 to 10 per cent.—for the inevitable errors that come in rapid work by the class of help that must be employed in packing fruit.

GRAPES FOR BRITISH COLUMBIA

WILLIAM FRETZ, JORDAN HARBOR, ONT.

I have been shipping grapes to British Columbia for at least three seasons. They were all crated and shipped by express, the bunches being selected. So far this market has not been very satisfactory.

The great objection to it is that as soon as grapes arrive there by freight, customers, who have placed standing orders, will wire cancelling all orders, while perhaps at least two shipments are in the express company's hands. In most cases these grapes are refused, causing loss.

I expect to continue shipping to my best customers, but there are others I would not do business with under any circumstances. All goods are shipped C. O. D., but this does not compel the buyers to receive them.

So far as Manitoba is concerned there is no apparent reason why, with proper facilities, we should not supply all the fruit consumed there. I have also made several trial shipments of strawberries to Winnipeg, but have not met with much success.

A Different Shaped Box Desired.

CRAZE & GOODWIN, MANCHESTER, ENG.

For ordinary fruit the barrel is the most profitable package for the Canadian dealer or farmer. Boxes should only be used for the highest class fruit, and should contain about 60 pounds weight of fruit.

The box of 36 pounds is too small, and there is too much waste space at the bottom, top and sides. The box should be half as long again so as to give it some appearance in the market. At present it is too short and dumpy.

The inspection of fruit in Canada and the new government method of grading are working out satisfactorily on our English markets.

The Wagner Apple for Export.—Mr. John Brown, inspector for the Department of Agriculture at Glasgow, reports to the Fruit Division, Ottawa, that the Wagner apple is much esteemed by some in the trade there, and if the fruit is of good size it is readily bought by certain of the best buyers. Others again will not look at this variety if they can get Spys or Baldwins, and class it next to Ben Davis. Its color and appearance are its redeeming points, as it lacks the flavor and juiciness of the two above mentioned varieties. Some dealers say it is a mistake to ship Wagners after the month of December, as they take on scald very easily.

I like The Horticulturist.—J. C. B., Galt.

Flowers for Guelph's School Children

A distribution of 500 packages of Semple's Branching Aster seed was made to the older scholars of the Guelph public schools during May by the Guelph Horticultural society.

The seeds are to be sown and the plants cared for by the scholars themselves at their own homes. An exhibit of Aster blooms grown by the scholars will be held early in September. The society also gave each scholar a printed bulletin compiled by Mr. Hunt, O. A. C., containing rules and regulations governing the competition, as well as a schedule or premium list, and full directions for the culture, cutting, and arranging the blooms for exhibition purposes. A copy of the bulletin will also be forwarded to each member of the Guelph society.

May Meeting Was a Good One

The first meeting of the year of the Ottawa Horticultural society was held during May. In spite of the lateness of the season there was a fair showing of flowers and vegetables. The exhibits were considered better than those made at the corresponding meeting last year.

In his opening address President P. G. Keyes referred to the increasing cultivation of both house and garden flowers in the city, and attributed a great deal of it to the good work done by the society. Members were urged to offer plants and seeds to their less interested friends and neighbors in order to create an interest in horticulture. Mention was made of the test conducted in Chicago, which showed that over 100,000 children in that city did not know the difference between a dandelion and a rose. An interesting talk on tulips was given by Dr. C. E. Saunders.

Among the special exhibits was a tray of beautiful pansies of numberless shades and hues, grown by Mr. W. Spendlow, of Rideauville. Among the chief prize winners were Messrs. W. H. Snelling, Jas. Rowley, R. B. Whyte, James Thorne, W. G. Black, James Cox, D. McLaughlan, J. F. Phillips, H. P. Carstesen and Dr. Fletcher.

All the Schools at Work

The Cayuga Horticultural society has just completed its spring distribution of seeds, plants and trees. No salaries have even been taken by the officers, and as much public interest has been excited as possible. The enthusiasm promoted by Mr. Goodman, the founder of the society, reached its annual climax at the meeting addressed by Mr. Race this spring, at which nearly 500 people were present.

The county council has given its annual grant to the grounds overseer for floral work. The high and public schools and local enthusiasts are not lagging in their good resolutions taken some years ago. A nice feature of the work is the enlisting of interest in the rural schools, particularly the Decewsville school, where Mr. W. J. Neale is principal. The members obtained by him give their society bonus together with several days' work with teams for the beautifying of the school grounds.—(F. G. Lishman, sec.

Hold Garden Competitions

The directors of the Stratford Horticultural society are pushing garden competitions with excellent results. Prizes are offered for the best gardens, and our society gives annually seeds and bulbs to each member, requesting them to make exhibits at our annual show, for which we give prizes. Flower seeds in variety have been distributed, including sweet peas, asters, gladiolus, and this year tuberous begonias.

The prize list for our annual show, which will be held in the City Hall, August 31 and September 1, has been prepared. It is quite liberal, and includes many classes for cut flowers, fruit and vegetables. At the time of the show it is possible we may arrange to have a talk by the judge on flowers. There seems to be a great apathy on the part of the public generally regarding horticultural matters, although we have some enthusiasts who push things along.—(W. Sanderson, sec. Stratford Hort'l soc.

Doing Excellent Work

The beautifying and cleaning of the old cemeteries of the town has occupied the attention of the Perth Horticultural society. This laudable work has been left entirely with the ladies, and the manner in which it has been performed has been such as to reflect the greatest credit on those interested.

During the summer months monthly meetings are held on the lawns of the members, and this has proven to be one of the most practical means of instruction of any undertaken by the society. Just now a movement is on foot, the initiative being taken by the society, to lay out a park in the town, and no doubt it will be carried to a successful issue.

The society has been of great benefit to the community, as it has been the means of instilling into the minds of the people in general a greater desire to beautify their homes and lawns, so much so that many are found that would compare very favorably with those to be found in much larger places. The success of our society is assured, as each succeeding year sees an increased interest and a larger membership.—(C. J. Foy, sec.-treas Perth Hort'l soc.

Gave Away Trees.—The directors of the Lindsay Horticultural society this spring sent the members a few apple and pear trees, some Victoria black currants, and a few packets of flower seeds for spring sowing. The apple was the York Imperial and the pear the Worden Seckel. We had a very intetresting lecture from Mr. Hunt on window plants. There was a very good attendance. We have no special line of work laid out for the year.—(F. J. Trampton, sec. Lindsay Hort'l soc.

The May Meeting Was Interesting

At the regular monthly meeting of the Toronto Horticultural society, held in May, an exhibition of bedding plants was made, and Mr. Wm. Hunt, of the Ont. Agri. College, Guelph, gave a good, plain and instructive talk on garden work for the season, describing the proper method of making a lawn, the places for the flower beds, and the classes of flowers suitable for the various places. He emphasized the great advantage of growing perennials in some of the permanent borders, naming many he thought not suitable and perfectly hardy. Unsightly walls, etc., he said, might be covered with climbing plants, and rockeries be made in corners. In these ways a small plot of ground may be made a place of beauty. Many questions were asked and answers given by Messrs. Hunt, Manton, J. McP. Ross, and others.

The officers of the society and a large number of members and visitors were present. The society will hold a pansy show the first Tuesday in June, and near the latter end of the month the annual show of roses will be held, it being the desire of the society to stimulate the growth of hardy roses. Exhibits from friends outside the city will be much appreciated. Mr. Chas. E. Chambers, Exhibition Park, is secretary.—(Edward Tyrrell, pres. Toronto Hort'l soc.

Holds Good Shows

The Kingston Horticultural society in the past has applied itself to practical as opposed to theoretical work. Instead of defraying the expenses of speakers it has joined, year after year, with the city agricultural society, and put on a splendid horticultural show as part of the annual fair. Their displays of flowers, etc., on these occasions have been highly praised by outsiders as well as by citizens. It is doubtful if finer displays could be found anywhere. Splendid money prizes have been given, and these have greatly encouraged and stimulated interest in local horticulture and floriculture.

In all probability the Horticultural society will hold a separate show this summer or fall, as there is little prospect of a fall fair. To make this a success the society will use its strongest endeavor.—(Leman A. Guild, sec.-treas. Kingston Hort'l soc.

Have Interested the Children

The Newmarket Horticultural society has completed arrangements and prize lists for its fifth annual flower show, to be held in the skating rink at some date in July. A promenade band concert will be given in the evening. There will be a school children's sweet pea competition, open to the children of the public and separate schools, for which no entrance fee will be charged.

A packet of the best strain of mixed pea seed has been given to every pupil 9 years of age and over, attending the schools, who has applied for it, and who has agreed to grow the flowers for this competition. Although the bulk of the prizes will be offered for exhibits of flowers, there will also be exhibits of fruits and vegetables.

We find the interest in horticultural matters, as well as the number of our exhibits, increasing very materially each year. This spring we held a meeting, which was addressed by Mr. T. H. Race, of Mitchell, who gave us an interesting lecture.—(Wm. Keith, sec. Newmarket Hort'l soc.

Have Given the Children Flowers

I would like to hear through your pages the methods adopted by other societies in distributing premiums to members. It has been the custom in Hespeler to allow members to make a choice to the value of 60 cents of any kind of shade, ornamental or fruit trees, shrubs, flowers or bulbs, and also to make their choice of premiums offered by The Canadian Horticulturist, as well as to receive that paper. If any one will tell us of any better method I for one would be glad to hear it. Our aim is to give every member, as far as possible, just what he most needs.

Our society distributed 200 geraniums and coleus among the school children during the second week in May. The teachers detained the children they thought would be likely to take care of a plant, after school, and the principal, the Rev. C. W. Cook, and the writer, in a few words, explained to the children the plants were the gift of the Horticultural society and that those who received them were expected to take every care of them. In the fall an exhibition will be held of all the plants, when a number of prizes will be given for the best plants. A few simple directions were given as to the treatment the plants require, and the children filed out each receiving a plant. The children were pleased, and in many instances the parents have developed an interest, partly perhaps to please the children. These are the first flowers many of the little ones have ever been able to call their own, and I believe will help to develop a love for flowers and the beauties of nature.—(E. Gurney, sec. Hespeler Hort'l soc.

THE SAN JOSE SCALE IN ONTARIO

(Continued from page 232.)

Canada from California, and the quantity used has increased every year. The next most popular preventive is crude oil. This is used quite extensively in the Niagara peninsula, where 8,376 gallons were applied this year. In summer, when the scale is found on trees, crude or kerosene emulsion is used to prevent its spreading.

"In sections where the townships have appointed local inspectors, as they are required to do on the application of fifteen growers, good work seems to have been done to check the pest. With the information we now have in our possession there does not seem to be any grave danger of the disease spreading to any great extent."

A PROVINCIAL HORTICULTURAL ASSOCIATION

The horticultural societies of the province appear to be in need of better organization. There is no means by which the members of one society can be brought in touch with those of another to the benefit of both. The dairy, live stock, poultry, fruit and other interests all have their provincial organizations, but horticulturists hav : none The agricultural societies of the province are brought in contact with each other yearly at the annual meeting of the Canadian Association of Fairs and Exhibitions. Why should not representatives of the horticultural societies hold a similar annual meeting at Toronto ?

This spring Mr. T. H. Race, of Mitchell, who visited and addressed a number of meetings held by horticultural societies, reported on his return that he had found many of the societies appeared to have a very poor conception of their duties. They were not attempting to hold regular meetings or exhibitions or even to distribute plants or seeds. He suggested that steps be taken to put life into some of these societies.

In this connection Mr. H. B. Cowan, superintendent of agricultural societies for the province, has written to the horticultural societies to learn if they would like to have a general meeting of their representatives held in Toronto next November at the time of the combined fruit flower and honey show. If considered advisable steps could then be taken to form a provincial association. Already a number of replies have been received, all of them being in favor of action of some sort. Some of the replies are here given.

WHAT THE SOCIETIES SAY.

That the Horticultural societies are at a disadvantage in not having a provincial association, to my mind, there can be no question. It would be well for you to state for the benefit of those who have never given the matter a thought what the benefits would be. The suggestion could then be discussed at society meetings. The combined show it is purposed to hold in Toronto next November is a good idea and should be largely patronized.—(E. Gurney, sec. Hespeler Hort'l soc.

I am satisfied that this is a step in the right direction, and I am sure our society will only be too glad to comply with your request in appointing delegates to attend this show. Such an exhibit must result in lasting good.—(J. G. Jackson, sec. Port Hope Hort'l soc.

I have consulted with prominent members of our association and they all express an opinion favorable to the idea of a provincial horticultural association, and it is likely that this society will be represented at the meeting in November. The letter will be laid before the directors at our next meeting.—(W. W. Livingstone, sec. Tilsonburg Hort'l soc.

At a meeting of the board of directors of the Cardinal Horticultural society, held last evening, I was instructed to advise you that our society would consider favorably the proposotion to form a provincial Horticultural association, and will be pleased to support anything that may be done along that line at the meeting in November.—(D. Gow, sec. Cardinal Hort'l soc.

The Cayuga Horticultural society approves of the suggestion to form a provincial horticultural society, and will send a delegate to the combined fruit, flower and honey show to be held in Toronto next november.—(F. G. Lishman, sec.

The suggestion to organize horticultural societies on a plan similar to the Fairs association is, I think, feasible, and sure to work for their good. I have no doubt a delegate will be appointed to attend by the Simcoe Horticultural society.—(J. Thos. Murphy, sec.

The president of the Oakville Horticultural society desires me to say that he heartily concurs in the proposal to hold a provincial meeting of delegates from horticultural societies in Toronto in November next, and that he has no doubt but that the Oakville society will send delegates to such a meeting. Personally I shall be glad to do what little I can to promote the success of such a meeting.—(J. Cavers, sec.

Messrs. Chris Firth, secretary of the Durham Horticultural society, and Allan Cameron, secretary of the Owen Sound society, have both written expressing sympathy with the proposal to form a provincial association and promising to lay the matter before their directors at the first opportunity.

Doing Good Work.—Our society during May was busy preparing Grand Avenue Park for the use of 30 selected pupils of the public school, who have each been given a plot and furnished with flower and vegetable seeds and gladiolus bulbs. They planted both seeds and bulbs, under the supervision of a practical gardener. We have also distributed amongst the other children of the school about 500 packages of flower and vegetable seeds, and intend holding a children's flower and vegetable show at a suitable time. We will also give prizes for best cultivated plots both at the park and at the houses of the children.—(W. W. Livingstone, sec. Tilsonburg Hort'l soc.

Hold an Annual Show.—An annual exhibition of plants is held each autumn by the Cardinal Horticultural society, at which prizes are given for the best exhibits of the different varieties of garden and house plants. This has the effect of stimulating competition, among the members, and truly the town hall, where the exhibit is held, is a beautiful sight on the day and evening of this exhibition. Since the formation of the society in the village a marked improvement has taken place in the lawns, as well as in the number and quality of the house plants owned in this place.—(D. Gow, sec. Cardinal Hort'l soc.

THE BIG FRUIT, FLOWER AND HONEY SHOW

Arrangements are now nicely under way for the Provincial Fruit, Flower and Honey show it is proposed to hold in Toronto next November. Judging from the interest and enthusiasm already displayed success seems almost assured.

A joint meeting of the representatives of the Ontario Fruit Growers' association, the Ontario Bee Keepers' association, and the Toronto Horticultural Society, was held Friday, May 13th, in the Parliament Buildings, Toronto. The gathering was presided over by Mr. G. C. Creelman, president of the Ontario Agricultural College, and chairman of the board for experiment stations.

Those present included Mr. W. A. MacKinnon, Chief of the Fruit Division, Ottawa, and Alex. McNeill, Senior Fruit Inspector, Ottawa. The Ontario Fruit Growers' association was represented by Messrs W H. Bunting, St. Catharines, the President; Murray Pettit, Winona; T. H. Race, Mitchell; Wm. Rickard, M. L. A., Newcastle; J. S. Scarff, Woodstock, and P. W. Hodgetts, Toronto, the Secretary. The Ontario Bee Keepers' association was represented by J. W. Sparling, Bowmanville, the President; H. G. Sibbald, Claude, and R. H. Smith, St. Thomas, Vice-Presidents, and Wm. Couse, Streetsville, the Secretary. For the Toronto Horticultural society Edward Tyrrell, the President; J. McP. Ross, W. G. Rook and C. E. Chambers, the Secretary, were present.

A letter was read from Hon. Mr. Dryden, Minister of Agriculture, which stated that the idea of holding a flower show for educational purposes, on the same lines as the Provincial Winter Fair at Guelph, was first talked of by the department last fall. The suggestion met with such approval that he had secured an appropriation of $1,000 to aid in holding such an exhibition. It had been suggested that the Ontario Bee Keepers' association and the Toronto Horticultural society be invited to co-operate. Mr. Dryden authorized Mr. Cowan, Provincial Superintendent of Fairs and Exhibitions, to take full charge of the arrangements for the proposed exhibition, and in this connection to call a meeting of representatives of any of the various societies interested that they might confer and work together to make the exhibition a success. In compliance with this letter Mr. Cowan was appointed secretary of the joint meeting.

DISCUSSED THEIR PLANS.

Previous to the joint meeting the representatives of the various associations had met and discussed their plans for the show. Mr. Cowan announced that at a joint meeting of the representatives of the Toronto Horticultural society, the Toronto Electoral District society and the Toronto Florists' and Gardeners' association, the selection of a place for the holding of the show had been considered. Committees from the various bodies and from the Fruit Growers' association had visited the two rinks on Church street and had found that they would be available during November, and that they were in every way suitable for the purposes of the exhibition. It had been found impossible to secure the use of the Armories. An estimate of the expenses connected with holding the show had been prepared at the joint meeting, as follows: Rent of rinks, $100; carpentering, $200; advertising, $250; music, $200; printing prize lists, etc., $150; labor, including caretaker and ticket sellers, etc., $100; heating, $200; incidental expenses, $100. Total $1,300. These figures, it was thought, would cover all the general expenses of conducting the show aside from the prize lists and the securing of exhibits.

DATE OF THE EXHIBITION.

The question of the best date for the exhibition was the first subject discussed by the joint committee. Representatives of the Fruit Growers' association were anxious that the show should be held the latter part of November. It was finally decided, on motion of Mr. Ross, seconded by Mr. Pettit, to hold the show November 8, 9, 10, 11 and 12, as being the dates best suited for a floral display. It was moved by Mr. Race and seconded by Mr. Tyrrell, that the estimates placing the expenses at $1,300, as submitted to the meeting, should be accepted, and that the Fruit Growers' association and the Toronto Horticultural society agree to divide the gate receipts and expenses equally on that basis, the Ontario Bee Keepers' association to be charged nothing for expenses nor to receive any share of the gate receipts.

To avoid expense it was decided that a joint committee, representative of the various associations, should be appointed to look after and make all necessary further arrangements and report back from time to time to their respective associations. The committee appointed consists of Messrs. Bunting, McNeill, Rickard, and Hodgetts for the Ontario Fruit Growers' association; Sparling, Sibbald, Smith and Couse for the Bee Keepers' association, and Tyrrell, Ross, Rook and Chambers for the Toronto Horticultural society.

The Gardeners' and Florists' association and Toronto Electoral District society will appoint two representatives each. Mr. Edward Tyrrell was appointed president of this committee until it meets and elects a permanent president and secretary.

Dr. Orr, secretary of the Toronto Industrial exhibition, addressed the meeting and suggested that the show might be held at the time of the Toronto Industrial exhibition. He contended that the holding of so many shows of this nature in Toronto has a tendency to weaken the Industrial. The present he considered a critical time in the history of this exhibition, so he thought everything possible should be done to insure its success. Both the representatives of the Fruit Growers' association and of the floral interests explained to Dr. Orr that the Industrial exhibition is held at too early a date to enable the making of a first class exhibit of fruit and flowers, and that, therefore, a later date had been selected. It is also the intention to hold the annual meetings of the various associations at the same time and to adopt other features which would be difficult to manage on the exhibition grounds where so many other attractions are carried on at the same time. No action was taken on Dr. Orr's suggestion. The meeting then adjourned.

ARRANGEMENTS FOR THE SHOW.

Already elaborate preparations are being made for the show. The Toronto Horticultural society purpose offering prizes amounting to $1,300 or $1,400, and inviting exhibits from all parts of the province and from the United States. The Ontario Fruit Growers' association will only offer about $500 in prizes, but will spend considerable money securing representative exhibits from the Experiment stations and from the districts in which the directors of the association are located. Money will also be appropriated for the transportation of exhibits and for keeping them in cold storage. The Bee Keepers' association will offer some $200 in prizes.

The prizes will be offered in such a way as to make the exhibits of as great educational value as possible. The intention is to hold the flower exhibits in one rink, the fruit and honey exhibits in the second rink, and an exhibit of orchard machinery in the open space of land lying between the two rinks. The rinks and the intervening ground are surrounded by a high fence.

The annual meetings of the Ontario Fruit Growers' association and of the Ontario Bee Keepers' association will be held at the time of the show. It is possible that there will also be a meeting of representatives of the provincial horticultural societies. The Fruit Division at Ottawa has agreed to make an exhibit of commercial fruit packages. Demonstrations will be given in packing fruit. Under the direction of the Farmers' Institutes ways of preparing fruit and honey for the table will be shown by some of the lady institute demonstrators. The prize list committees of the various associations will shortly have their lists completed and ready for distribution.

Fruit Prospects Throughout the Dominion

As a result of enquiries made throughout the Dominion the Fruit Division at Ottawa announces that the damage from mice has been most serious in Ontario and Quebec. There has been a serious increase in the number of mice during the past year. The damage to nursery stock was particularly severe, and it is safe to say that not less than 25 per cent. of all stock "heeled in" out doors has been destroyed. The injury was almost nothing where young orchards had clean culture throughout the season. The loss will probably reach about 25 per cent. of all young trees. The practice of the best orchardist seems to be to grow the cover crop even at the risk of encouraging the mice and to protect the trees against their attacks. Keeping a small circle about the trees clean is not, in itself, a sufficient protection.

DAMAGE BY FROST.

The damage by frost, though exceedingly serious in Ontario and Quebec, will not affect to any great extent the amount of fruit put on the market this year, except in the case of plums and peaches. Apples and pears were seriously injured along the northern border of the fruit belt. The Baldwin, Greening, Ontario, Spy and Blenheim have been killed in places where they are usually considered hardy. Top-grafting only very slightly increases the hardiness of the variety. None of the large apple-producing sections were seriously injured.

The Flemish Beauty pear again proved one of the hardiest of good varieties. In both pear and apple orchards the trees suffered much less from frost and more from mice when grown in sod or cover crop. Plums were killed in some of the heavy plum-producing sections, and in all probability the buds are so seriously injured everywhere as to render a heavy crop this year improbable.

The reports from the Essex peach district show a damage approaching that of 1899; 50 per cent. of the trees will be killed outright. The Niagara district is not so severely injured. The Crawford type proved particularly tender. Cherries are also injured severely in bud. Small fruits escaped with less injury.

Cold Storage Company's Meeting

The annual meeting of the St. Catharines Cold Storage and Forwarding company was held May 21. The financial statement for the year showed a surplus of over $700, which was considered highly satisfactory. It was announced that in future the directors will help members more than in the past in the purchasing of supplies, baskets, barrels, spraying materials and similar articles at wholesale prices. The fruit of members will be sold direct to consumers and dealers.

During the past five years over $3,000 of the surplus earnings have been used to reduce the original debt on the plant. This debt now only amounts to $1,500. In the future it is expected dividends will be paid on the stock. Up to the present no new stock has been offered for sale since the company's inception, but some new stock will now be offered for sale at par. The board of directors was re-elected. The general feeling was that the company had been very successful during the past year.

The Inspectors Meet.—A meeting of the Dominion Fruit Inspectors was held at the Central Experimental Farm at Ottawa, May 17, 18 and 19. The idea of the gathering was to bring the inspectors in touch with each other and to inform them of the latest developments in all branches of the fruit industry. Model orchard meetings were conducted for their instruction, and addresses were given by Mr. W. A. MacKinnon, chief of the Fruit Division, Ottawa; Dr. Fletcher, Mr. W. T. Macoun, and other authorities.

The advertisement of the Pure Culture Spawn appears in this issue for the first time. They invite the attention of all mushroom growers to their new "Tissue Culture Pure Spawn," grown after improved methods, fully described in their interesting circular, on the origin, history, and improvement of "Mushroom Spawn."

FRUIT CONDITIONS IN ONTARIO

The Canadian Horticulturist up to May 25th had received fruit crop reports from some 400 fruit growers in all the leading fruit producing sections of Ontario. Detailed statements dealing with the prospects of each of the leading fruit crops are given below.

Readers must bear in mind that all statements given at this early season are liable to be greatly changed as the season advances and the actual conditions become more apparent. In brief it now appears that the yield of strawberries, plums and peaches will be light, while apples, pears and cherries will be a good average crop.

Apple Trees in Good Condition

Several hundred correspondents scattered throughout all the principal apple producing counties of the province. reporting to The Horticulturist state that trees have come through the winter in good condition. Prospects for both the early and winter varieties of apples are very encouraging. A few correspondents indicate that Baldwins and Spys will be light in some sections. On the whole the early varieties appear to be in quite a little the better condition.

The damage by mice will be no greater than reported last month. when it was estimated the total loss for the province would not be greater than 2 to 3 per cent. In some counties whole orchards have been destroyed through the trees being girdled, but in many sections no loss at all has taken place. Trees appear to be blooming very nicely. On the whole. the reports received from growers show that they feel quite hopeful for this year's crop. In the early varieties of apples prospects are fair to good in Wentworth, Halton and York counties. uniformly good in Ontario. Northumberland, Hastings. Victoria and the eastern counties. In the vicinity of Lake Huron and Georgian Bay. Lambton and Huron counties report trees are in full bloom. Conditions along Lake Erie are equally favorable, as large crops are anticipated in Kent, Oxford, Lincoln and Norfolk counties and fair to good crops in Essex and Welland counties.

THE WINTER VARIETIES.

As already intimated, prospects for the winter varieties do not appear to be as bright as for early apples. Bordering Lake Ontario, Wentworth, York, Northumberland, Durham, Hastings and Lennox counties intimate that they do not anticipate more than 50 to 80 per cent. of an average crop, while in Peterboro and the eastern counties only 60 to 70 per cent. of a full crop is expected. Trees in Ontario county are said to be in excellent condition.

Much the same conditions rule in the Lake Huron section, as reports say the yield is not likely to be more than an average in Huron, Bruce and Grey counties, while Simcoe county will probably be below the average. Moderate yields are expected in Essex, Kent and Welland counties, and good returns in Norfolk and Lincoln county.

I had thought of stopping The Horticulturist, for at 75 years of age I do not take as much interest in fruit is I formerly did, but I like to see how fruit growing improves, so am renewing my subscription.—(A. D. Lee, Stoney Creek, Ont.

Peach Prospects Still Uncertain

Up to as late as May 25 correspondents located in the peach districts reported that it was very difficult to give an accurate estimate of the chances for the peach crop. From the replies received it would seem that the number of trees winter killed will not be as large as at first feared, although in some districts, and in fact in a few townshivs, peach orchards have been utterly ruined. There are, on the other hand, numerous sections where the damage is reported to be very light.

The most serious reports of loss have been received from Brant county. In West Brantford township the peach trees are reported almost all winter killed. One grower, living near Mohawk, announces that he has lost all of the peach trees on his farm, over 2,000 in number, and that 10,000 trees in that section have been killed. A second correspondent places the number of trees killed at 70 per cent., while a third says that half the trees have been killed and all the buds destroyed.

In Essex county the estimates of damage range all the way from 5 to 90 per cent, showing how conditions vary in different parts of the county. On a whole the loss is evidently much less than at first feared. The conditions in Kent county are much the same, estimates ranging from 3 to 75 per cent. The prospects in Elgin county appear to be better, as no correspondent places the damage at above 25 per cent. Growers in Welland and Lincoln counties appear to take a more hopeful view of the situation. Most of them write that while it is too early to state definitely what the damage has been, they know it has been serious. Old trees have suffered much the worst. One grower writes that his old trees are going to leaf out nicely and some to blossom, but he fears there is not much vitality left in them and they will die later. On the whole it appears that the loss in these two counties has not been serious. Prospects in Wentworth county are good. The trees appear to have come through the winter in excellent shape, although there has been some loss in the old orchards.

PERCENTAGE OF BUDS.

Buds appear to be showing in a most encouraging manner. On this point some growers are enthusiastic in their replies, announcing that there is a "splendid showing for fruit" or "enough for a full crop." Brant county seems to be the worst sufferer, as replies indicate that many trees there are not budding at all, although in two or three sections trees have budded in a promising manner. In Essex and Kent counties estimates of the number of buds

showing range from 25 to over 50 per cent., and in a few cases even higher. In Elgin county buds are not showing to the same advantage. Estimates of the percentage range as low as 5 to 15 per cent., although the hardy varieties are said to be budding freely.

The percentage of buds on trees in Welland county ranges from 10 to 15 per cent., and 15 to 90 per cent. in Lincoln, depending largely on the location of the orchards. The majority of the correspondents replied that there will at least be a moderate crop on thrifty trees. In Wentworth county the conditions are much the same, most replies indicating that sufficient buds are showing to insure a crop of most of the varieties.

NOT MANY NEW ORCHARDS.

In reply to the question. "To what extent are new orchards being planted?" the majority of replies indicate that few or no new trees are being set out. although isolated reports show local activity in this line. In the vicinity of Raleigh, Kent county. it is stated that the number of orchards being planted is the largest in years, while near St. George, in Brant county, large orchards are being set out. numbering in all about 5,000 trees. In Lincoln and Welland counties not so many trees are being planted as last year, although quite a few growers are said to be filling in gaps in their orchards. Reviewing the situation as a whole it seems that the area in bearing peach trees this year will be quite a little less than two years ago. In another month it will be possible to obtain a pretty accurate idea of the fruit prospects in all the counties.

Strawberry Crop Will Be Light

The 1904 strawberry crop in Ontario will not be a very heavy one, as plantations in many of the leading counties have been badly destroyed by the severe winter. The southern counties have suffered the most. In the section bordering Lake Erie and in the Niagara peninsula the yield will not likely be more than 10 to 50 per cent. of an average crop.

In the northern counties prospects are more encouraging. Where the snow fall was heavy and where the snow remained until late in the season, beds appear to have wintered fairly well, although some reports indicate that where strawberries were mulched heavily the heavy fall of snow had the effect of smothering them. Beds that were at all exposed. unless they were mulched heavily, have been almost completely ruined. Some growers have plowed under as many as 25 to 30 acres of their strawberries.

The most severe loss seems to have taken place in Welland and Lincoln counties. Estiwates of the loss range from 50 to 90 per cent. of the average crop, although in a few cases beds have done nicely. A good crop may be expected in Bruce, Durham. Hastings, Grey and Lincoln counties and in the eastern sections of the province. and fair to good crops in Huron and Ontario counties, while in Brant, Lambton and Northumberland counties the yield is problematical. as in some sections beds have suffered severely. while in others they have come through in good condition. In Essex. Kent. Elgin, Wentworth. Halton. Lennox and Norfolk counties correspondents state the prospects are fair to bad. On the whole there seems no doubt but that the crop of strawberries this year will be quite a little lighter than usual.

Light Yield of Plums Probable

Plum growers this season are not likely to find it as difficult to dispose of their crop as last year, owing to the fact that trees have apparently come through the winter in rather poor condition. Reports received by The Horticulturist from the leading plum producing sections show that many trees have been quite badly injured. In some cases growers are pulling up their plum orchards, having become discouraged as a result of their inability to dispose of their last year's crop at satisfactory prices. Insect pests have also tended towards a decrease in the plum acreage.

In Huron and Bruce counties the crop is reported to be fair to good: conditions in Simcoe county are much the same, while in Lambton county prospects are said to be promising. Along Lake Erie trees in Norfolk and Lincoln counties are doing well, while in Essex and Kent counties only a fair crop is expected. In Wentworth. Halton, York, Ontario, Durham, Hastings, Frontenac and Grenville counties the yield will be light; in Victoria, Peterboro, Lennox. Leeds, Elgin and Oxford counties a poor crop is looked for.

Good Prospects for Pear Crop

Prospects for the pear crop this year are promising in all the chief producing sections. Out of several hundred growers heard from by The Horticulturist the replies indicate that large crops may be expected in Essex, Kent, Norfolk, Welland, Lincoln, Wentworth, York, Ontario and Brant counties, and fair to good crops in Lambton, Huron, Bruce, Simcoe and Halton.

In Northumberland, Durham and Elgin the prospects are not quite as bright, although a good crop is generally anticipated. Growers in Victoria, Peterboro, Lennox, Hastings and the more easterly counties anticipate a light yield. On the whole the pear trees apprear to have wintered in good condition and to give good promise of a very satisfactory yield.

Cherry Crop Conditions

Both the sweet and the sour cherry trees give promise of a full fruit yield in most of the producing sections. In Essex, Kent, Welland and Wentworth sweet cherry trees are reportetd to be in excellent condition, while in Lincoln, Oxford, Lambton, Huron, Grey, Simcoe, Halton, Ontario and Durham a fair crop is looked forward to.

GROWERS' VIEWS OF FRUIT PROSPECTS

Our peach trees were thought at first to be frozen, but good luck saved them. They are not so bad as first indications led us to believe. Have been through 10 or 15 orchards and find them all the same. The mice did a lot of damage to young trees. I lost 100 out of 4,000 trees. Some are very bad.—(J. E. Hambley, Kent Co., Ont.

Peach trees are killed at the ground, but are showing blossoms. Those on sandy ground are all killed; those on clay loam only a few killed, except those by mice.—(Harry Forbes, Kent Co., Ont.

The spring has been so unfavorable for the trees that it is difficult to determine the true condition of the trees as to injury done by the winter.—(M. G. Bruner, Essex Co., Ont.

I find strawberries are very badly injured by the winter, except where heavily mulched.—(G. A. Heath, Norfolk Co., Ont.

Very few strawberries in our county. I tried them for three or four years; they would have many blossoms, but very few berries, so plowed them under.—(J. W. Harum, Hastings Co., Ont.

Strawberries look fine. Peaches are all dead, and some plum trees. The fruit crop looks favorable. The first cry was that the buds were all killed, but they are coming out all right and everything is growing fast—(R. Morton, Durham Co., Ont.

Red raspberries here have been badly winter killed. Blacks have come through better.—(H. M. Cassèlman, Lambton Co., Ont.

Strawberries are in very poor condition. About half the most extensive growers are plowing their berries up. In quite a few cases there are not enough plants to set out a new bed. The ice in the spring killed the strawberries, I think. Fall mulched plants are injured as bad as those not mulched.—(J. W. Munroe, Welland Co., Ont.

We have not been troubled to any extent with borers or oyster shell bark louse. We give clean cultivation and stop working about August 1st. We thin the fruit to about six inches apart on the limbs and find it pays well to do so. If we allow our trees to overbear one year we are almost sure to have no crop the next. The loss of trees in this section has been very heavy the past winter, in some cases almost 90 per cent. My own loss by actual count has been 34 per cent.—(A. Dawson, Brant Co., Ont.

The strawberries that were not mulched or covered with snow during the winter were nearly all killed. I lost about 25 acres. Strawberries in this section are nearly all killed. Raspberries are also damaged very much. Blackberries came through all right.—(A. Railton, Welland Co., Ont.

Strawberry plants are badly injured. On three acres I will not have enough to fill a crate, and what plants appear alive have not strength enough to throw out a blossom. Some peach trees around Leamington appear to be as badly killed as they were five years ago, but here I believe the orchards will show a good per cent. of uninjured trees, probably 75 to 85 per cent. They are now full of bloom and foliage, excepting a couple of spots; my orchard never looked better.—(J. O. Duke, Essex Co., Ont.

Strawberry plants are looking pretty well, but are backward. The few blossoms that are out are black with frost.—(John Mead, Halton Co., Ont.

Strawberry plants in poor condition and over two-thirds winter killed. A large percentage of the peach trees that are showing buds now I think will die. As a rule, if one bud in ten matures a peach it makes a large crop. The few buds that are out now look very pale, which is not a good sign, as they generally drop off.—(F. G. Stewart, Lincoln Co., Ont.

Plum trees bore so heavy last season they were in poor condition to stand the winter.—(G. Gott, Lambton Co., Ont.

Vineyards are being pulled up on account of dry and grey rot; poor prospects for this year's grape crop.—(J. Dougal, Essex Co., Ont.

In Glenleg township little spraying is done. Japanese plums promise a good yield and have wintered all right. Lice are common on apple trees. Pruning has been well done.—(R. T. Edwards, Grey Co., Ont.

Little can be said with certainty yet about the mice and winter frost. A great deal of damage was done. I lost one large Abundance, one large Burbank, and a lot of smaller trees.—(S. Spillett, Simcoe Co., Ont.

The prevailing wet weather during May will make apple scab very prevalent, where trees are not sprayed, and curl leaf on peaches.—(Jos. Tweddle, Wentworth Co., Ont.

Strawberries are not much good owing to the last two seasons being wet. The plots have all gone out of repair and grown up into grass, and many of them will have to be plowed up.—(J. J. Coyle, Lambton Co., Ont.

Old trees are hurt to a great extent, perhaps 50 per cent; 4 to 6 year old trees about 5 per cent., and 1 to 2 year trees are strong and healthy. One man had 800 trees, fully 700 of which are killed. Very few fruit buds seen as yet. I have ten acres of fruit, and not one tree girdled by mice. Out of an orchard of 1,500 peach trees only 25 are killed. Strawberries very badly killed.—(James Ellis, Wentworth Co., Ont.

Peach trees show about 30 per cent. of the usual bloom in some cases and less in others. Winter killing of peach buds has been unusually severe, partly because many orchards are in a weak condition on account of San Jose scale infestation. Orchards that have been treated for this enemy have wintered well and buds show for a fair crop. One grower near Queenston Heights lost 300 fine peach trees and others more or less.—(Mr. Armstrong, Niagara Co.

THE FRUIT TRADE WITH THE WEST

THE MACPHERSON FRUIT CO., WINNIPEG.

The bulk of our apples commence arriving in Winnipeg from the south the latter part of July and continue coming forward until the latter part of August. The Ontario crop in season, when it has been plentiful, has always displaced them at this date.

British Columbia has sent, late in the season of different years, one or two cars of apples which have been much admired for their fine appearance but are generally regarded as lacking in flavor. A few also have been sent from Oregon and Washington Territory, but the same remarks apply to these as to the shipments from British Columbia. From all these points the apples are sent in boxes.

Pears, peaches, plums and grapes nearly all come from California. Oregon and Washington Territory also contribute some of these. Ontario, with the exception of grapes, sends such a small proportion it does not seriously affect the shipments from the other.

THERE HAVE BEEN HEAVY LOSSES.

Shipments of Ontario fruit, always excepting grapes and apples, have succeeded so badly that we do not like to write or ever to think about them. The long list of heavy losses from badly packed fruit, put up without care or honesty and sent forward without discrimination or knowledge of what is required on long distance shipments, is so great that it is exasperating to merely contemplate them.

All fruit is in demand that can be put on this market in good order and at fair prices. The best package to use is a subject that requires much study and one that cannot be answered within the space of an ordinary letter. Our inspector here has had a long experience both here and in Ontario and will doubtless be able to give intending shippers some valuable information along that line.

Manitoba and the Northwest Territories are for apples, and ought to be for small fruits, the best customer Ontario has. Before this can take place in small fruits there must be an entire and tremendous change in Ontario in the methods of packing and transportation. Ontario peaches or strawberries are not likely to ever be a pronounced success on this market. The same remark applies to plums.

For apples, grapes and pears it remains with the Ontario men to either hold this market or lose it just in proportion as they show themselves intelligent and enterprising in adopting up-to-date methods and when organization becomes powerful enough to compel concessions for transportation facilities that will ensure the rapid transit and proper handling of goods.

OBSTACLES TO SUCCESS IN FRUIT GROWING

The codling moth, apple scab and caterpillars are our most serious obstacles, together with the way in which commission men buy and handle our fruit. In some cases the fruit is not fit for home market, much less for exporting.—(Daniel Durham, Lambton Co., Ont.

The tent caterpillar has appeared earlier than usual this season, and is most in evidence at this time. Insect pests are our chief hindrances to growing fruit successfully, together with the expense of handling the fruit properly. Help is so scarce that the fruit cannot be handled in time to prevent spoiling. As a rule the farmer does not spray, and the insects get part of the crop.—(Charles J. S. Natel, Huron Co., Ont.

The Fruit Marks Act is the most serious obstacle to successful fruit growing in our locality. —(Theo. Murray, Bruce Co., Ont.

In this district, as in all others, the question of farm labor is the most serious drawback.—(J. W. Munro, Welland Co., Ont.

Excessive freight rates are a serious obstacle to our fruit raising. We pay as high as 7 to 9 cents per basket to send them to London.—(Fred. Howell, Brant Co., Ont.

People in my vicinity have not had much experience in growing fruit, and lack of proper knowledge in taking care of trees and selecting the proper kinds has been a great drawback. A great many poor quality trees have been bought and brought into the section by agents, all of which has been a hindrance.—(J. W. Harum, Hastings Co., Ont.

Fruit growers should be protected by law from nurserymen selling trees untrue to name. This difficulty and San Jose scale are our two greatest difficulties.—(H. S. and C. Fisher, Lincoln Co., Ont.

The most serious drawback to successful growing of fruit in our section is the lack of attion by many fruit growers. Apples are our main crop grown for export. Packages are too dear. It is a serious hindrance when the package costs nearly as much as the apples are worth.—(W. J. Bragg, Durham Co., Ont.

Caterpillars are not so bad this year as the past two years, but there is a fly or insect which is very bad, stinging the apples and thus doing a lot of harm. We have no market to encourage fruit growers to raise fruit to sell.—(Chas. Brethour, Ontario Co., Ont.

A great drawback to planting good orchards of apples is to get good stock to plant, as nurserymen supply you with anything but the kind you order. They give you mostly varieties that bear in the fall and which are worthless on the market.—(Thos. O'Brien, Durham Co., Ont.

Farmers think it will not pay to spray. They have been taken in by men going around spraying and have had no results. The man who goes around spraying looks out for his own pocket.—(A. H. Crosby, York Co., Ont.

The want of a better market is a great obsta-

cle to fruit growing successfully. For instance, take the plum crop of last year; we could not give our plums away because we had no open or foreign market.—(Thos. Cairns, Peel Co., Ont.

Carelessness in growers not looking after their trees in the way of trimming, spraying and cultivating is a great obstacle in growing fruit.—(John Leonard, Northumberland Co., Ont.

Scarcity of labor and not properly cared for orchards are serious obstacles to fruit growing. Proper cultivation will bring apples every year in our section.—(William Wade, Northumberland Co., Ont.

Scarcity of help among the farmers, and indifference in the care of apple orchards in pruning, fertilizing and spraying are all great obstacles to successful fruit growing.—(M. S. Schell, Oxford Co., Ont.

Boarding gangs and uncertainty of getting apples packed in season militates against large orchards.—(Thos. Baker, Solina, Ont.

The greatest obstacle to successful fruit growing is probably the tedious and constant work of spraying, which is necessary to produce marketable fruit, also multiplicity of varieties and too much fall stuff; also the exorbitant freight rates to our markets in the west.—(Frank J. Barber, Halton Co., Ont.

I know of nothing that will aid and help the apple business of Ontario more than expert spraying. It is aosolutely necessary to accomplish a condition of things we should aim at, viz., that all apples packed for market should be of uniformly good quality. Seasons may differ, various conditions may differ, but the destroying of insect pests must be reckoned with.—(Wm. Rickard, Newcastle, Ont.

The fruit growers of to-day find that in order to realize the highest prices for their fruit, it is necessary to place on the market a good sized and clean article free from worm holes. It is impossible to do this without the free use of the spray pump.—(George A. Gott, Arkona, Ont.

Our Monthly Weather Report

In Ontario, April was a cold month in all districts, and particularly so in the southwestern portions of the province, where the temperature was 6 degrees below average and lower than in any April since 1885. In northern and eastern districts conditions were much nearer normal, and in the Ottawa and Upper St. Lawrence Valleys the temperature was higher than in the Niagara peninsula and near Lake Erie.

The rainfall was generally above average, excepting in the more central districts of western Ontario, and there were a few light snowfalls in all parts.

Up to May 20 the mean temperature of the current month has been below average in western and considerably above average in eastern Ontario, Toronto being 1 degree below average. The city of Montreal reports the highest mean temperature for the twenty days, 58.5 degrees, and Ottawa comes next with 68 degrees, being respectively 3.7 degrees and 2.8 degrees above average. Compared with last year, this May has so far been cooler, the difference being very small in the Ottawa Valley and fairly pronounced in the more western portions of the province, and this taken in connection with April conditions amply accounts for the fact that all vegetation in eastern Ontario is much in advance of western Ontario, including even the southwestern counties, which is extremely unusual. Ample rains have fallen in all parts of the province.

Maximum temperatures recorded during period May 1 to 20: Port Arthur, 74 deg.; White River, 76 deg.; Parry Sound, 82 deg.; Saugeen, 84 deg.; Port Stanley, 70 deg.; Toronto, 74 deg.; Kingston, 78 deg.; Ottawa, 82 deg.; Bissett, 86 deg.—(This report is furnished The Horticulturist for the benefit of fruit growers by the director of the Toronto meteorological office.

The Orchard Monarch

is the spraying machine which should receive the attention of large sprayers. It is a mounted sprayer carrying 150 gallons of liquid. The force for operating is supplied by the mere movement of wagon by means of hind wheel gearings. It is intended for large orchard operations and is a

Perfect Automatic Sprayer.

Driving from tree to tree generates power—130 lbs to the inch—to spray five minutes with two nozzles and reach top of tallest trees. It also operates automatically the liquid agitator and brush for cleaning suction strainer, so that vines and foliage are never scalded nor burned and nozzles never clog. The Monarch, as the name suggests, is the peer of sprayers for large orchard operations. We manufacture many kinds and sizes of sprayers for all purposes. Write us for anything in the spraying line, formulas, appliances, etc., and ask for our Free book on spraying.

Field Force Pump Co., 231 Eleventh St., Elmira, N.Y.

C. G. DAVIS, Agent for Ontario, · FREEMAN, ONT.

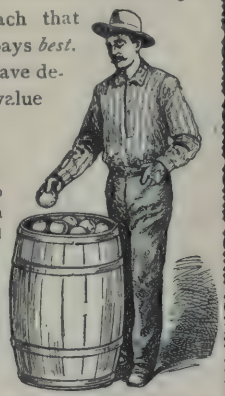
TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

A crop that pays may not pay as well as it should.

Potash

is a plant food which all crops must have. Without sufficient Potash to feed upon no crop can reach that point where it pays *best*.

Experiments have demonstrated the value of Potash.



We will send free, to any farmer who will write for it, a little book that will give facts in full.

GERMAN KALI WORKS
93 Nassau Street, New York.

THE

DAWSON COMMISSION CO

solicits your

Consignments of Fruit and other Produce.

THE BEST FACILITIES FOR HANDLING. PROMPT REPORTS AND SALES. . . . . .

Corner West Market and Colborne Streets,

TORONTO.

Tags, Stamps, Pads supplied on application. Correspond with us.

FROM: _____ (Shipper)
(of Ontario)

To McWilliam & Everist
TORONTO

The Shipper using these tags is assured of the best results possible for his fruit on Toronto Market. . . . . .

McWILLIAM & EVERIST
25 & 27 Church Street.

HIGH GRADE CAMERAS

Plate, Film or Plate and Film Combined.

Manufactured by the

CANADIAN CAMERA CO.

7 and 9 Bolton Ave.

TORONTO, ONT.

Phone M 1858

FULL LINE OF : : : :

Holders, Tripods,
Plates,
Papers, Etc., always in stock.

WRITE FOR QUOTATIONS.

Pure Culture

MUSHROOM SPAWN

Has proven to be most productive. Made according to methods recommended by the U. S. Dept. of Agriculture. Send for instructive circular on "Mushroom Spawns."

PURE CULTURE SPAWN CO.

Box— **St. Louis, Mo., U. S. A.**

Ask your Grocer for

Windsor Salt

Its Pure—That's Sure.

I Can Quickly Sell For Cash

Without local publicity, your **Business, Real Estate or Partnership,** no matter where located, Send me full particulars, prices, etc. Address

CHAS. E. POWELL,
19 W. Mohawk Street. Buffalo, N. Y.

TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

JULY

To him who in the love of Nature holds
Communion with her visible forms, she speaks
A various language; for his gayer hours
She has a voice of gladness, and a smile,
And eloquence of beauty, and she glides
Into his darker musings, with a mild
And healing sympathy, that steals away
Their sharpness, ere he is aware. . . .
Go forth, under the open sky, and list
To Nature's teachings, while from all around—
Earth and her waters, and the depths of air—
Comes a still voice.

W. C. BRYANT.

Farm Work Carried on in the City of Toronto.

A Township devoted exclusively to the production of vegetables and a little flowers and fruit is located in the city of Toronto. It is connected with the Broadview Boys' Institute and is managed entirely by the boys. They have elected their own reeve, councillors, path master, weed inspector and other officers. When started two years ago, 46 boys undertook to raise vegetables and produce. The venture proved so successful that last year 66 boys took charge of plots of land. The number has increased this year to 86 who farm 94 plots. There are 12 large plots which are looked after jointly by all the boys, in which flowers are raised and experimental work conducted. The illustration shows the plots and some of the boys at work. The large boys work plots 10 x 40 feet in size and the small boys sections 10 x 20 feet. Last fall a two days exhibition of the products of the institute was held which was attended on the last day by 1200 people.

The Canadian Horticulturist

JULY, 1904

VOLUME XXVII NUMBER 7

CANADA AT THE ST. LOUIS EXPOSITION

T. H. RACE, OF THE STAFF OF THE CANADIAN FRUIT COMMISSIONER.

THIS is truly a World's fair. The average American's idea of things is bigness, and that idea is carried out here in St. Louis to almost an extravagant degree. Magnitude seems to have been the end aimed at in the planning and execution of everything, and now the almost universal verdict is that the whole thing is too big.

The cloud-capped towers, the gorgeous palaces, the stupendous temples are planned and executed on such a magnificent scale that it may truly be claimed the world has never beheld the like before. But they cover too much ground, and one loses too much time and energy in getting from one to the other.

But all that aside, the readers of The Horticulturist will want to know where, amid all this magnitude and splendor, Canada comes in. In the common phraseology of the day, let me assure them that Canada is fully and emphatically "in it." No country or state is more so. And let me observe just here that nothing less than Canada has done would have sufficed to give that effect required at the present time. The name of Canada, and I might say the fame of Canada, has penetrated every quarter of the United States during the past two years, and every citizen of the United States has heard what is called here "the Canadian boom." What Canada is doing here at this great exposition is practically substantiating all that has been heard of her boundless resources and the marvellous variety of her products. "These exhibits," said a prominent Cincinnati man, "tell us more than we have ever heard about Canada, and we can no longer doubt."

The majority of Americans were willing to believe that Canada could produce grain, live stock and agricultural products in almost unlimited variety, but they were scarcely prepared to believe that she could produce such a variety of fruits. "Does all this fruit grow in that cold country?" is the question that we have to meet continuously. That we are meeting and answering the question convincingly, may be gathered from the remarks that one hears on the streets, in the public places, and even from the pulpits sometimes, when the features of the fair come under observation.

SOMETHING ABOUT OUR EXHIBITS.

Of the Canadian exhibits in the mining, agricultural and other departments I will merely say that they are attracting wide attention and provoking much favorable comment. The horticultural building, generally speaking, comes last on the list, and the visitor has seen pretty nearly everything before he comes to the fruit. We have the advantage, therefore, in getting the impression that he has already formed of Canada

before he reaches us. And this satisfaction is generally ours, that he never has to lessen his good opinion, but on the contrary his "astonishment" at Canada's display is considerably intensified.

Very few citizens from the south were prepared for so varied an exhibit of fruit from Canada. They did expect to see apples, but were quite unprepared for such a display of grapes and peaches. Without exaggeration or boasting I can say with pride that, barring California, no exhibit in the horticultural pavilion attracts so much attention or receives so many favorable comments for its variety and artistic arrangement as does the one that I have the honor to preside over.

Of the qualities of the Canadian display I will speak but briefly. From an Ontario standpoint I am not too well satisfied with it. If we had a few cases of those Canada Reds, Kings and Yellow Bellflеurs that I saw at Simcoe last fall we could easily beat anything in the building in these varieties. Even the Baldwins at Simcoe would give us second place, while now we hold about fourth. But, take the display as a whole, I can stand in the midst of it and say with pride to the visitor. "This is what Canada, my country, can do."

SOME CANADIAN EXHIBITORS.

Mr. Harold Jones, of Maitland, has done splendidly for us, his Scarlet Pippins and McIntosh Reds are greatly admired. Mr. Dempsey, of Trenton; Mr. Sherrington, of Walkerton; Mr. Woolverton, of Grimsby; Mr. Stephens, of Orillia; Mr. Pettit, of Winona, and some others, also deserve special credit. Others worthy of mention may come to my notice as the cases come from cold storage and are opened.

At present we have 94 varieties of apples on display from cold storage, but many more than that in bottles. Apart from apples our bottle display comprises large collections of pears, plums, peaches, cherries, gooseberries, red and white currants, strawberries, raspberries, blackberries, cranberries, dewberries, blueberries, grapes, tomatoes, wax beans, green peas, snow-white cucumbers, rhubarb, strawberry-raspberry, and almost everything that is grown for household use. There is no such variety or collection shown within the exhibition grounds, and it is largely that feature, together with the arrangement in display, that attracts so much attention. Two opinions are freely expressed; first, that Canada has a surprising variety of products, and second, that Canadians have the faculty and enterprise for showing them to the best advantage.

May I add a word to readers of The Horticulturist who are intending to visit the fair and want only moderate accommodation. Take a Market street car at the Union station and go right out to the west end heights close to the agricultural entrance, and ample accommodation can be found within a few minutes in any direction at from one dollar a day up, meals extra at moderate prices.

Spraying is a live question with most fruit growers now, or should be, as the San Jose scale will force many to spray who never gave the matter a thought before. Where one has a lot of trees to cover the old hand pump must give way to the power outfit to insure the completion of the work in a reasonable time.—(Frank Blaikie, St. Catharines, Ont.

I have about 450 apple trees and have a preference for the following varieties: Red Astrachan and Duchess of Oldenburg, for the early varieties; Hulbert, St. Lawrence, Alexander and Snow for the autumn, and Ben Davis, Northern Spy and Grimes' Golden for winter use. These so far have given me the best results.—(Chas. Hay, Ontario.

THE MARKETING OF FRUIT

COMMISSION dealers who handle fruit on a large scale are often in a position to note methods of marketing, which result in the securing of advanced prices for fruit. Differences in the shape and size of packages, and of their construction, often materially affect the prices obtained for the fruit. In this connection some interesting information was given a representative of The Horticulturist recently by the manager for Messrs. McWilliam and Everist, commission dealers, of Toronto.

"It often pays handsomely," said this gentleman, "to have a lid on the fruit case. Where covers are nailed on they are frequently broken off by the customers in their desire to look at the fruit before making a purchase. Other customers who examine this fruit see broken covers and get the idea that the fruit has either been tampered with or rejected for some good reason by a previous intending buyer, and they immediately receive the impression that there must be something wrong with the fruit or that it is not as good as it appears. Where a case has a lid which can be readily lifted, any number of buyers may examine the fruit without in any way injuring the appearance of the package.

THE BEST STRAWBERRY CASES.

"For the marketing of strawberries, 24, 27 and 36 quart cases, non-returnable, are preferable to the 54 quart case. They have a much better appearance and are always fresh and clean looking. They also save a great deal of trouble on the part of the consumer, who is not put to the bother of looking after the return of the packages.

After a 54-quart case has been used a couple of times it soon looks the worse for wear, especially if the customer, as some do, has used it for the holding of potatoes. A nice clean looking case of fruit will often bring a better price than better fruit marketed in dirty boxes, although good fruit and good packages are both required to obtain the best prices.

TOO MANY DIFFERENT SIZES.

"There are too many sized baskets used in the marketing of cherries, grapes, peaches, plums and pears. These include all sizes, from the 6-quart to the 14-quart baskets. The best and most popular sized basket is the 12-quart for the larger size and the 8-quart for the smaller one. It is well to have at least two sizes like this, for some buyers desire a large basket, while others prefer a smaller one.

"One of the greatest objections to having too many different sizes of baskets is the difficulty experienced in filling large orders with fruit packed in uniform baskets. It does not look well to fill a customer's order with different sized baskets. It always complicates matters when we are unable to fill our orders with baskets of the same size as those upon which we quoted prices, when taking the order. Confusion is also caused sometimes among the growers, who hear that we are paying one grower more for his baskets than we have been paying them. These men do not realize that the difference in the size of the baskets is responsible for the difference in price paid.

"The Ontario Fruit Growers' Association would take a progressive step were it to adopt a uniform basket in the same way it has adopted a uniform apple box. The same reasons which led the association to adopt a standard apple box apply in the case of the basket.

"Where there is uniformity in the size of the packages buyers order with more confidence as they know just what they will receive.

WHERE LOSS OCCURS.

"One great objection to putting up cherries in large quantities is the tendency of this fruit to heat, which results in great injury to the quality. A great deal of money is lost by growers through lack of care in

picking cherries. From the appearance of the fruit when it reaches us it would seem as if these growers had simply grabbed the cherries from the trees, and I believe this is what some of them do. This treatment wounds the fruit and decay sets in inside of three hours.

"When fruit that has been picked in this way reaches us it is generally practically worthless. Cherries should always be picked by the stem, the cherry itself not being touched. The same care should be exercised in picking all kinds of fruit.

"Some of the 24-quart crates have a handle which has many strong points. A hole is simply cut into the ends of the crate, large enough for the insertion of a man's fingers. This kind of a handle is never in the way, and does not take up any room. Another good kind of a handle is a wire one, which drops onto the top of the box when not in use.

"The wooden handles, which are used so extensively on 24-quart crates, often break. This makes it not only difficult to handle the boxes conveniently, but affects the appearance of the package. These handles are good except for this drawback."

SPECIAL CARE NEEDED THIS SUMMER

HAROLD JONES, MAITLAND, ONT.

OWING to the severe injury received by fruit trees, as a result of the cold weather last winter, which resulted in the rupturing of the wood cells in the trees, it is necessary for us to pay particular attention this summer to the cultivation and fertilization of our orchards that as rapid a growth as possible may be brought about to cover the defective wood with new tissue. If this is not done there is danger that the trees will not recover their accustomed vigor and that they will go into next winter in a weakened state. In such a case conditions will possibly be worse a year from now than they are to-day.

During July I intend to follow up the thorough system of cultivation started in May and June, with the object in view of building up a good covering of new tissue for the wood in the trees that were injured last year. Not later than the first of August I purpose sowing a heavy cover crop to ripen up this new wood growth and prepare the trees for the coming winter. There is nothing better for this than clover, either the common red or mammoth red; crimson clover is not hardy.

It is necessary to have the land in as fine tilth as possible, so as to ensure the germination of the seed and give vigorous growth. It has often been the case that where a heavy cover crop exists in the fall, serious injury is caused during the winter by field mice. To prevent this the trees can be easily and cheaply protected by wrapping them with building paper; not tar paper, which causes injury to the trunks of the trees.

Plums being so low in price, farmers are cutting many of their trees down. Black knot is a great drawback to plums. Many growers do not keep it down, and the law is not put in force.—(Henry Wiggins, Nottawa, Ont.

Nine-tenths of our trees are not trimmed enough. I believe that if we would all trim trees more closely and head in or shorten the branches that this is the cheaper and most practical way to thin fruit.—(Robert Thompson, St. Catharines, Ont.

WHICH SHALL WE USE, THE 28 OR 30 INCH BARRELS?

ALTHOUGH the standard apple barrel contains 96 quarts and is 28 inches high, the majority of Ontario fruit growers appear to prefer and to be using one of larger size, known as the 30-inch barrel. For this and other reasons the suggestion has been made that the Ontario Fruit Growers' Association should adopt the 30-inch barrel. The views of some of Ontario's leading fruit growers on this subject have been gathered by The Horticulturist.

"The 30-inch barrel," said William Rickard, of Newcastle, "contains several quarts of apples more than the standard 28-inch barrel. For myself, I rather like the larger barrel; it does not cost any more, either to buy, pack or ship.

"It is, I think, a little better appearing, and is likely to strike the buyer more favorably. In my section the larger barrel is used almost exclusively. I would like to see the Ontario Fruit Growers' Association adopt either one size or the other as its recognized barrel."

"I prefer the 30-inch barrel over the 28-inch one," said Mr. W. H. Dempsey, of Trenton, "because it is the standard barrel in my section, and we have become accustomed to its use. Nova Scotia shippers have been using the 28-inch barrels, as have, I believe, the New England fruit growers. The result is that apples from these sections and from Ontario are often distinguished by the different sized barrels.

"Quotations in English catalogues show that Ontario fruit brings more than enough extra in price to make up the difference in the quantity of apples contained in the larger barrel. As long as our fruit continues to bring the best prices I think we should stick to the barrel by which our apples are recognized.

"Another point to be considered is how the 28-inch barrel would effect the coopers. Were the 28-inch barrel to become generally used, coopers who happen to have considerable stock left at the end of the season, would be unable to use the extra barrels for shipments of sugar and flour, and the stock would be left on their hands. By using the 30-inch barrels, if they have any left over, they are able to utilize them for other purposes. The appearance of the 30-inch barrels is also nicer."

"I think it would be a great mistake were the apple trade of Ontario to adopt the 28-inch barrel," writes J. G. Anderson, of Lucknow. "The freight and other charges are the same on the larger as on the smaller

The Georgian Bay Fruit Experiment Station.

A partial view of the orchard at the fruit experiment station in the Georgian Bay district, conducted by J. G. Mitchell of Clarksburg, is here given. Some 300 varieties of fruit are being tested. The orchard shown on the left side in the illustration contains four acres of such varities of apples as Spy, Baldwin, King, Ben Davis, Golden Russets, Gravenstein, Rode Island Greening and others. In the background are 1200 plum trees' includiug 180 varieties all of which are labeled and numbered, that an exact record of each tree may be kept. There is a sixteen acre orchard of winter apple trees which cannot be seen in the illustration. It contains two blocks of dwarf pear trees of such varieties as Bartlett, Duchess, Louis Bonne, Clapp's Favorite and others. It has been found that pears have done as well at this station as apples, the results far exceeding expectations.

package, and we get more money for fruit in the larger barrel. If the department of agriculture at Ottawa desires a uniform package for the whole Dominion it should choose the 30-inch barrel."

Mr. J. W. B. Atcliffe, of Westmount, Que., also favors the 30-inch barrel, although he prefers to ship Fameuse and early apples in boxes. Mr. F. E. Brown, of Mitchell, was the only shipper heard from who expressed a liking for the 28-inch barrel.

Winter Killing of Apple Trees

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have about 20 acres of apple orchards, planted eight years ago. Last winter the severe weather froze them in the crotches, and I am afraid they will be killed. The Starks, Baldwins and Artics are badly frozen. Some of the Baldwins are dead, and I fear I will lose the other varieties. In some cases I have cut away the dead bark and covered the spots with a solution of resin, tallow, turpentine and methelated spirits, to keep out the sun and rain. I notice the bark peeling off the upper side of the limbs and on the trunks in many instances. Do you think it advisable to trim heavily ?—(W. H. Bentley, Prince Edward County.

The past winter has been an exceptionally severe one on nearly all kinds of trees, and it is doubtful if many of the tender varieties will survive the effects of the severe freezing. I find that Baldwin trees have suffered particularly in our experimental orchard at the college, nearly all of this variety having been killed.

LET NATURE HAVE HER WAY.

Probably the only thing that can be done is to allow nature to reassert herself. In cases where the bark shows signs of peeling off it would be well to tack it down or bind it firmly about the trunk and branches to prevent exposure to the sun and air. Where the injury is on the trunk it would be well to encase the trunks of the trees with boards and fill in next the tree with earth. This would keep the bark from peeling and protect the cambium layer from exposure to air.

Where the injury is in the crotches of the trees, it is more difficult to treat. Where possible it would be an advantage to bandage the injured parts with clay plaster, which would keep the parts fresh. In cases where new growth does not start until quite late in the season, it is doubtful if they will recover sufficiently to stand another winter.

Topping Apple Trees

"I AM in favor of the low topping of apple trees because of the great convenience in picking. When trees are low there is less likelihood of the fruit being injured in cases of windfalls." These views were expressed to The Horticulturist recently by Mr. William Rickard, M.L.A., of Newcastle, Ont.

"I have seen trees so trimmed," continued Mr. Rickard, "that pickers had to go up 12 to 15 feet to obtain any apples. In such cases the cost of picking amounts to nearly all the apples are worth. The only objection to low branches in the orchard is the difficulty experienced getting under the limbs for the purpose of cultivation. Trees, I am satisfied, will yield just as well when the branches are low as when they are high. I have had my Greenings so that I could stand on the ground and pick two barrels of apples from a tree.

"As regards the coloring, I find the Spy and red varieties generally will not color as well on low branches as on high ones, and for that reason I would not trim these varieties as low as the others. They may, in ordinary cases, be topped when the trunk is five feet high, which I think is high enough for any tree. I grow my Greenings low down on the ground and find they are not damaged in any way. They do not need the coloring the red varieties do."

FRUIT GROWERS ARE FOND OF THE ROBIN

A VIOLENT agitation has been carried on during the past year by fruit growers in several states of the American Union to secure laws that would lead to a reduction in the number of robins, if not to their total extermination. It has been claimed that robins are very destructive to fruit.

The Canadian Horticulturist recently wrote to a number of leading Canadian fruit growers to ascertain their views. Some of the replies are here given, and the rest will be published in following issues. It will be seen that, with one or two exceptions, our Canadian growers are very fond of and appreciate the good done by our red breasted friend and his mate.

FRUIT GROWERS' VIEWS.

Robins are not nearly so bothersome as the crows, nor do they eat as many cherries as the crows. Would dislike much to see any laws tending towards their extermination.—(R. J. Lightle, Brown's Nurseries, Ont.

The robin is the worst of all the small birds. I have some early cherries, but the robins get them all before they are fully ripened. I have a few sour cherries, but Mr. Robin will not touch them. There are a great many robins around our place, and I think it would be wise to reduce the number if possible.—(S. W. Brigham, Islington, Ont.

While the robins do sometimes take a few cherries, and an occasional strawberry, with sometimes a few grapes, in my personal experience I have never suffered any great loss from their ravages. I have always considered they do an immense amount of good by destroying large numbers of our insect foes. If it were not for the assistance we fruit growers get from our native birds we would have to do a great deal more spraying and insect fighting than we have at the present time, and dear knows that's needless.—(F. A. Sheppard, Queenstown, Ont.

I have some five or six hundred cherry trees in two blocks, and a row of mulberry between. The robins go for the mulberry, and my cherries are safe. I suggest planting mulberry instead of killing the robins.—(G. Findlay, Walkerville, Ont.

OPINION OF AN EXPERT.

Dr. James Fletcher, of the Central Canada Experimental Farm, Ottawa, writes The Horticulturist an exceedingly interesting letter strongly in favor of protecting the red breasted songster. He says: "The food of the American robin has been investigated by students of birds. In the stomachs of 500 robins, collected in various parts of the country, cultivated fruit formed less than 8 per cent. of their food, and practically all that was eaten in June and July. It was found that over 96 per cent. of their food in April, 97 per cent. in May, and over 43 per cent. in June consisted of insects. of which almost one-fifth to nearly two-fifths was injurious insects. In June they began eating fruit, cherries forming 14.6 per cent. and raspberries 36.6 per cent. of their food." From the evidence presented in Dr. Fletcher's letter it is safe to say that noxious insects comprise more than one-third of the robin's food, vegetable food nearly 58 per cent., wild fruits 47 per cent., and varieties that were cultivated a little more than 4 per cent. The Horticulturist will publish Dr. Fletcher's letter in a later issue.

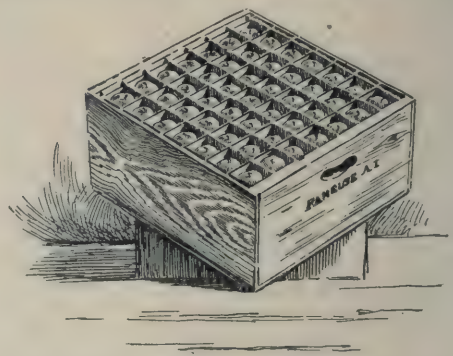
The well known authority on birds, Mr. C. W. Nash, of Toronto, has also sent The Horticulturist a valuable statement on this subject, which sustains the position taken by Dr. Fletcher.

FANCY PACKING

L. W.

I have thought out what I think is a new way of packing fruit in boxes; one which is clean, handy and cheap, and which will grade the fruit at the same time. I am sending by express a sample box with the packing. The packing will accommodate itself to pears as well as apples, which is one of its best features, and still grade the fruit. The boxes could be made any size and the packing according to kind and quality. I have to thank you for other valuable information furnished me in the past.—(Tom Gibson. Toronto.

The best methods of packing fancy fruit for export has been made a study by the writer for seven or eight years past. At first a box containing eight shallow trays was tried, in which the fruit was packed in a single layer. These cost about 40 cents for the box of trays and only held about one bushel. At the end of the season it was decided the box was too elaborate and cost too much money, and in this the English buyers concurred. Next came the Wilson box, with trays and cardboard divisions. These were similar to the Cochrane case, much used in Montreal, and shown in the illustration, but the trays or drawers were made to slide, a difficult thing to work without bruising the fruit. These cases are mentioned to show that the plan of packing proposed by our correspondent is not at all new. This package was given a thorough trial. While the value of the little pasteboard cell for each individual fruit is fully appreciated, and while it might be a fine method of packing for export tender fruits of great value, such as our finest Elberta peaches, the package at that time was too costly to be used for apples and pears, but I understand some



The Cochrane Case.

This box for shipping fruit, fitted with trays and cardboard divisions, has been much used in Montreal. It is known at the Cochrane case. While excellent for costly fruits it is rather expensive for common use.

improvements have since been made and that the price has been considerably reduced. Indeed, no box for apples can be more desirable than the one now adopted by Ontario, of which the inside measure is 10 x 11 x 20 inches, while for pears a box just half as deep, measuring 5 x 11 x 20 cannot be excelled.

Planting Peach·s

J. L. HILLBORN, LEAMINGTON.

Would you advise the planting of many varieties of peaches ?—Subscriber.

That depends largely on how you sell your crops. I grow a variety of crops and send out weekly quotations to my customers. By growing a number of varieties it is possible to have them ripen in succession, so that peaches can be picked every day.

I have not been troubled much by the peach tree borer. The best method of getting rid of them seems to be to dig them out with a knife.—(Robert Thompson, St. Catharines, Ont.

I consider spraying, when it is properly and thoroughly done, to be of great importance. It must, in almost every case, be of great good; but, on the other hand, when carelessly, recklessly and improperly done, it will not only result in doing no good, but may cause very serious injury.—(Wm. Rickard, Newcastle, Ont.

Free Sulphur in the Lime-Sulphur-Lye Wash.

FRANK T. SHUTT, M. A., CHEMIST, DOMINION EXPERIMENTAL FARMS.

THERE has recently been devised a method for the preparation of the California spray, which does away with the most troublesome part of the process, namely, the boiling. The union of the lime and sulphur is effected by the aid of lye, the modification reducing the time of preparation and simplifying the whole operation.

The efficacy of this wash. as in the case of the lime-sulphur-salt wash, for the destruction of scale insects undoubtedly lies in the sulphur compounds it contains—in other words, upon the degree to which the component elements have united in the preparation of this insecticide. With this fact in mind, it is important, therefore, to know, first, how completely the sulphur is combined when the modified method with lye is used; and, secondly, if the preparation can be kept for any length of time without a marked separation of the sulphur.

Last November a quantity of the wash was prepared, using the lime, sulphur and lye in the following proportions: Lime. 40 parts; sulphur, 20 parts; lye (caustic soda), 10 parts. A sufficiency of water was employed to allow the proper preparation of the compound, but the water requisite to bring it to the right strength for spraying was not added. As made, it was an orange-red mass of a stiff, pasty consistency. Analysis showed it to contain, approximately, 50 per cent. water, and further, that traces only of sulphur existed in the free state.

This pasty mass (which contained, approximately, 15 per cent. of combined sulphur), was placed in a large, glass-stoppered vessel to protect it from the air, and allowed to remain in the laboratory all winter. On April 15, practically 5 months after making, it was carefully examined for free sulphur, and as a result 0.5 per cent. was found to be present. It is evident from the foregoing (1) that in the preparation by the use of lye practically all the sulphur may be brought into combination; and, (2) that when preserved in the pasty condition, out of contact with the air, no appreciable amount of sulphur separates for a considerable length of time.

It should not be inferred from the foregoing that it is advisable to make more of the mixture than is required for immediate use. Exposure to the air, as in a barrel, will, undoubtedly, cause deterioration. The evidence here brought forward, however, may prove of service to those who have thought that the efficiency of the spray is dependent upon its application within an hour or two of its preparation.

Hogs in the Plum Orchard

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

What is the cause of apple trees dying in the orchard? The trees are 10 to 15 years old and fully four feet in diameter. Hogs used to run in the orchard. The bark of the trees near the ground is gone. Can the hogs have done this? —(M. A. H., Oakville, Ont.

It is quite possible that hogs may have girdled the trees, as they will frequently do this if pasture or feed becomes at all scarce, and sometimes for no other reason than for mere hoggishness. If the bark has been destroyed all around the tree there is no hope of saving the tree except by bridge grafting.

Scions for this purpose should be cut long enough to bridge the injured portion and should be inserted beneath the bark above and below the injury, and then bound firmly with bandages, in which moist clay is held, firmly about the trunk. If the injury has been done so long ago that the tops are already dying, it will be too late to save the trees in this way, but trees recently girdled can be saved by bridge grafting.

ENGLISH FRUIT GROWERS AND FLORISTS FOR ONTARIO

"DURING the past two years 150 to 300 British people have emigrated to Ontario as a result of the work of the agents of the Ontario government in England. I know personally of at least 160 who have come out this year, and while it is difficult to give any estimate, I feel satisfied that upwards of 300 have actually come over. Of this number, possibly one-third have been men interested in fruit raising and the growing of vegetables under glass and cloth." These remarks were made to The Horticulturist recently by Mr. M. E. Kyle, of Oakville, Ont., who has just returned from Great Britain, where he has been since last November in the interests of the colonization department of the Ontario government.

"I find," continued Mr. Kyle, "that a great many people living in the Channel Islands of Jersey and Guernsey, who make a specialty of raising potatoes, tomatoes, and early vegetables and grapes all under glass, are becoming deeply interested in the chances for fruit and vegetable raising in Ontario. While I was in their sections these people asked me a great many questions about Ontario, and a number decided to come over. As a result of our work a year ago 50 to 60 families from these sections are already located on some of our Ontario farms. When I am asked for information regarding openings for this work in Canada I always advise intending settlers to arrange to work for a year at least for some of our practical fruit growers before buying ground and starting for themselves.

ORCHARDS NOT WHAT THEY MIGHT BE.

"While travelling through Somerset and Hereford I was greatly surprised at the condition in which I saw many of the fruit trees. It is scandalous the way they are neglected. Many of the trees were covered with moss and apparently had never been pruned. I did not see a decent orchard. The growers informed me that they simply raised apples for cider, and that therefore they did not give the trees the care and attention they otherwise would. Of course this lack of attention on their part is all the better for our Ontario growers.

"English farmers never grow Spy, Baldwin or Greening apples, and do not seem to want these varieties. It may possibly be that these apples do not grow well there. The most popular local varieties seem to be the Russets, Blenheim Orange and Ribston Pippin. Even in the good orchards, the people do not seem to give the trees the same care and attention we do in Ontario. I think this is largely due to the fact that most of the farms are rented, and the tenants do not feel like improving land which does not belong to themselves.

"There are some extremely large strawberry plantations. I visited one place near Chester where a man had over 800 pickers employed yearly. Near Stanley, in Kent county, is another large strawberry center, as well as in Cambridgeshire."

Cultivate Plum Trees.—Some of my plum trees are growing in the fence rows and receive no cultivation, but seem quite healthy. Others receive the same cultivation as my apple orchard, viz.: one orchard is sown with peas during the last of May. The hens and hogs are allowed to harvest the peas, which are not plowed until the following May. The other orchard is well cultivated during June and part of July, and then seeded to crimson clover mixed with a small quantity of red clover and allowed to stand until the following June.—(D. James, Langstaff, Ont.

To make apple raising profitable we must be able to secure a crop every year, and with proper care and attention there are plenty of varieties that will bear annually.—(J. S. L., Bartonville, Ont.

Best Fruit for Eastern Ontario

"APPLES are certainly the most profitable fruit to raise in the St. Lawrence valley, particularly the Fameuse and varieties of that family, such as the McIntosh, Scarlet Pippin and Shiawasie. These varieties attain a greater state of perfection in this section than in almost any other part of the province." These views were expressed recently by Mr. Harold Jones, of Maitland, to an editorial representative of The Canadian Horticulturist, who visited his place.

Mr. Jones conducts one of the fruit experiment stations, and is doing an invaluable work. It is probable not another station in the province is obtaining better results. Mr. Jones has devoted five acres of the best land on his farm to experimental work, and is thoroughly versed in the results of all the experiments he has conducted. Some of the results he has obtained have already been of great value to the fruit growers in the eastern part of the province, some of whom have driven distances of 25 miles to secure his advice as to the best varieties to grow.

"The Fameuse and kindred apples," continued Mr. Jones, "from a commercial standpoint, are of as much value to the growers of eastern Ontario as the Baldwins, Spys and Greenings are to the growers in the rest of the province. Most of the varieties of apples in my experimental orchard are proving hardy. Winter injury is noticed on the Ontario, Blenheim, Pippin, Downing, Winter's Maiden Blush, Sutton Beauty, Stark and Rolph. In this part of the province there has been some serious injury by frost to the Fameuse and Scarlet Pippin, which were overloaded in the summer of 1903. Where trees were not debilitated by over loading they are in fairly healthy condition, with good prospects for a full crop this year.

As a result of the severe winter it would appear that as a whole European plums are not satisfactory for this section of the province. The Japanese plums, with the exception of one or two varieties, are proving almost as tender as the European.

Very good plums of the Americana class can be grown here successfully, as they are proving hardy in wood and bud. Some are of very poor quality. Among the better varieties may be mentioned the Whittaker, Hammer, Stoddard, Wolfe and Wyant. Among the better known European plums that were winter killed are the Communia and Coe's Violet.

PEARS HAVE BEEN INJURED.

All the varieties of pears have been more or less injured in the fruit buds, except the Russians. The hardiest varieties, or varieties that came through with the least injury, are the Flemish Beauty, Clapp's Favorite, Ritson and Sudduth. These are pears of good quality. Experiments with five or six varieties of the Russian pears indicate they are not a desirable fruit for Ontario, as their flavor and texture are very inferior.

When to Stop Cultivating

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

What time of the year should I cease cultivating my orchard ?—(W. T. Nutt, Zenda, Ont.

Cultivation in the orchard should cease about the middle of July, depending somewhat upon the locality and nature of the season. If continued too late it stimulates late growth of wood, renders the trees liable to winter killing, and does not allow of a good catch of cover crop, which should be sown as soon as cultivation ceases.

If we leave our apple trees to take care of themselves they will produce a large crop of inferior fruit one year and none the next. The orchard that is managed in this way will be very unprofitable.—(J. S. L., Bartonville, Ont.

Should our Farmers Raise More Fruit?

D. JAMES, LANGSTAFF, ONT.

WHETHER or not the average farmer should raise more fruit depends largely on his individual circumstances. If a man has a fair sized farm and not much help of his own, with little prospect for securing any, most decidedly it would not pay him to raise more fruit. The care, the harvesting and the marketing would interfere with farm work and loss be sure to follow.

I believe in fruit and plenty of it for the farmer, but not one farmer in 20 is qualified or has suitable appliances to carry on so many branches of agriculture and horticulture. If a man has help or prospect of help, and a small farm, or can get help from a near town or village, he may well raise more fruit, but paying $1.25 to $1.50 a day and board, or $30 per month with board for eight months, which many pay, is too much.

WHERE PROFITS GO.

There is a prospect for a demand for fruit in the northwest, but the railroads will absorb the profits in freight charges.

Sections of the country that are extra well adapted for fruit should be given up to that industry. Spraying could be done more cheaply, the marketing could be better attended to, the buyers would know where to go, and better rates in freight might be procured.

I believe in mixed farming, but there is danger of getting it too much mixed. It is nice to have plenty of honey and strawberries on the farm, but the farmer who is going to be successful with either one must not allow seeding or harvesting or threshing or corn cutting or root hauling to interfere with the care of his fruit. Every farmer should have plenty of fruit for his own use and some to spare; but if he goes further he should first count the cost.

Does Cultivation Promote Scab?

IN the opinion of Mr. A. W. Peart, of Burlington, clean cultivation in the orchard has a tendency to promote scab. "It is my belief," said Mr. Peart to The Horticulturist, "there has been too much clean cultivation. I have been keeping my orchard cultivated for 15 years.

"If anything green is on the soil it has a neutralizing effect on vapors arising from the soil, which tend to promote scab. I think that the finest lot of apples sent to the old country last year came from an orchard which had been in oats. I firmly believe that clean cultivation promotes the scab."

Winter Killing of Pear Trees

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

Two or three years ago I set out a few hundred pear trees. Up to the present they have done very nicely, but this year there seems to be a blight attacking and killing them. The leaves curl up and gradually turn black, and shortly the whole tree dies. I will be very much obliged if you can give me any receipt for spraying that will counteract this.—(C. C., Simcoe, Ont.

The dying of your pear trees is probably due to winter killing, the same as that of plum trees. The past winter has been one of the most trying experienced in many years, and reports are coming in from all over the country that pears, plums, and even tender varieties of apples, have been seriously winter injured.

In many cases the killing has not been outright, and the trees did not show the injury at first except in the blackened condition of the wood, which may have been noticed at pruning time, but now that the foliage should be in good condition the trees are showing lack of vigor and many of them will succumb before the end of the season. The experience of last winter should teach us many valuable lessons as to what are the "iron clad" varieties.

ORDERING APPLE BARRELS

"I LIKE to order my apple barrels as early in the season as possible," said Mr. W. H. Dempsey, of Trenton, recently to The Horticulturist. "I have sometimes," he continued, "had them all made up in May and always have them completed before August. There are many advantages gained in this way. The timber smell has all passed off, so that when the apples are placed in the barrels they are not likely to become tainted with any odor. It is easier to secure help early in the season to manufacture the barrels, and the material can generally be obtained at lower prices. The barrels are also set up better, inasmuch as they are not thrown together the way they often are late in the season when there is a big demand for them. A cooper who makes a barrel early in the season knows that he will have to make it well, or it will go to pieces on his hands before he will be able to sell it.

An Old St. Lawrence Landmark

Few occupied houses in the province are in as good a state of preservation and as old as the homestead here shown. It is owned by Mr. Harold Jones, of Maitland. Mr. Jones' great grandfather, with his wife and mother, moved to the farm in 1783, drawing 1000 acres of land from the government. The residence here shown was built in 1796, and is consequently 108 years old. It faces and commands a lovely view of the St. Lawrence river. Mr. Jones' four children are the sixth direct generation that has lived on the farm. Owing to portions of the original acreage having been bequeathed to sons and daughters the farm now contains only 165 acres. Not an acre of the first 1000 has ever been sold. Mr. Jones conducts one of the provincial fruit experiment stations. He has about 1100 trees of all kinds but devotes most of his attention to apples. Five acres of the farm are devoted to the expermental work. Mr. Jones is increasing his fruit acreage every year.

A BETTER BARREL.

"I prefer the eight-hoop barrel, as while it costs me about three cents more to manufacture, it is much stronger than the six-hoop barrel. It stands shipment so much better that the difference in the cost price is more than made up. Coopers here are asking 45 cents for manufactured barrels, compared with 35 cents at this time last year, and I believe that this price is likely to go up at any time.

"I prefer to have my barrels made up on my own farm, because it enables me to inspect them all. I buy the material and have a cooper come to my place and do the work. If I find a cooper is using some inferior lumber I reject the barrels and send them back into the shop. He soon learns that I will only accept good work, and culls out the poor and cracked staves. I would rather lose the poor staves and have a strong tight barrel than accept one with holes and cracks in it. When barrels are turned out by the factory all the timber on hand is used by the cooper, with the result that many of the barrels are made very poorly. Growers who buy from the manufacturers have to take what they can get, and consequently are unable to obtain as good stock as they otherwise might."

Good Results from Japanese Plums

W. D. A. ROSS, CHATHAM, ONT.

I HAVE tried a good many varieties of plums in a small way, and each season confirms my good opinion of the Japanese varieties. The Burbank, Abundance, Wickson, Red June and Climax are my favorites thus far.

In some districts there is a prejudice against the Japanese varieties for two or three reasons; early blossoming perhaps being the principal, but in this section they give two or three times the crop the European sorts of the same age do.

I esteem the Burbank very highly. It is a steady and heavy cropper, good shipper and good seller. The buyer asks for it the following season too, which is a very good sign. Abundance, when fully ripe, for near market is also an excellent plum; Wickson and Red June are good, and Climax, which has only fruited one season, has done well.

The blossoms of these varieties are scarcely ever injured here by late frosts. The trees seem perfectly hardy, are good thrifty growers, and come into bearing at a very early age. The quality of the fruit quite equals that of most European sorts.

Among the older varieties, Reine Claude, Imperial Gage, Yellow Egg, Niagara and Guii are favorites. If I were confined to two varieties for general use and market they would be Burbank and Reine Claude. The very early varieties have not proved as profitable as the mid-season and late ones, as the demand early in the season is limited.

As to fertilizers, I have never used anything but stable manure, which with clean cultivation seems to produce good strong growth and abundant crops.

The plum rot has proved a much more difficult thing to combat than the curculio. Last season the curculio did little damage, at least the crop set so heavily that there were plenty left after they had destroyed their share, but rot developed badly, especially in the Lombards. Bordeaux mixture was used as a preventive, but even with this it was a very difficult matter to keep it in check.

In this respect too the Japan varieties have a great advantage, as they do not seem to be affected with rot nearly as badly as European sorts. There are decided profits in Japan plums. Europeans are questionable, at least with the varieties which go to make up the average orchard.

Management of Small Pear Orchard

FRANK J. BARBER, GEORGETOWN, ONT.

MY pear orchard is small, containing some 50 trees in all, so I look to our home markets for the disposal of my fruit. For this reason, when starting, I selected varieties of superior quality, such as Clapp's Favorite, Sheldon, Seckel and Flemish Beauty.

The Flemish Beauty has done particularly well, and finds a ready sale as a canning or pickling pear. For eating out of hand the little Seckel comes first for quality, with Flemish Beauty a good second.

I spray three times with Bordeaux mixture and paris green; first, just when the leaves are coming out; second, before the blossoms open, and third, just after the blossome fall. The Flemish Beauty trees are sprayed once or twice more at intervals of 10 to 12 days with Bordeaux to keep the pear scab from developing. For pear psylla and aphis I spray with whale oil soap solution, 1 pound to 7 gallons of water, as soon as they appear.

The orchard is not cultivated. It has been seeded down to Lucerne clover for eight years. In the spring a limited amount of well rotted manure is spread around the trees to act as a mulch. Since adopting this method there has not been the least sign of pear blight. This is probably due to the fact that plenty of the Bordeaux mixture has been used every year.

JAPANESE PLUMS NOT RECOMMENDED

J. G. MITCHELL, GEORGIAN BAY FRUIT STATION.

AFTER a careful test of several years with many of the leading varieties of Japanese plums, I find them sufficiently hardy, exceedingly strong growers, wonderfully productive and strikingly handsome and attractive. Their quality or flavor, however, is so much against them I could not recommend them for extensive planting in the commercial plum orchards of Ontario.

Where they are best known they are the least wanted, in fact some of our lake traders will not buy them at any price if they can obtain anything else. They say they are poor plums and hard to sell.

THE BEST VARIETIES.

The following varieties I have found to be the best, after full tests: Abundance, tree a strong upright grower; fruit, when well grown, large and beautiful; color, yellow or amber, overlaid on the sunny side with dots and splashes of red; flesh, extremely juicy, a delicious dessert plum to eat fresh from the tree. That is about all it is good for. It is too poor for a shipper.

Burbank: One of the strongest but most spreading and sprawling growers in the orchard. It is a great bearer, but to produce the finest fruit the tree should be severely thinned. Quality of fruit fairly good. It is attractive in color and a good shipper, making it one of the best of the Japanese.

Red June is the earliest good plum we have; also the most desirable of the Japanese varieties. Tree is a strong grower, forming a large well-shaped top, bears the third or fourth year and abundantly. Fruit is medium to large, color bright red, quality fairly good. It is more like the European than any other Japan plum, except Wickson, which we have not fully tested yet, and which we think will be too tender for here. Season, first two weeks in August.

Orient is a very handsome symmetrical grower and fairly vigorous; fruit as large as the Burbank, but much more even in size. It resembles the latter variety closely.

Chabot: This is a very hardy, strong grower, forming a handsome and symmetrical top. It bears the third or fourth year. Fruit about the same size as Red June, not quite as conical, sometimes very large when trees are young. Skin is amber and well covered with splashes and markings of red, making it most attractive. In quality it is about the best of the Japans, and it is a regular and abundant bearer, in fact, inclined to overbear. September is its season.

Hale's Japan is a strikingly handsome fruit, but far too juicy for a shipping plum; good for dessert, and like Abundance, one tree would be nice in the home grounds.

Satsuma or Blood is a most remarkable fruit tree, a strong spreading grower, but not so much so as the Burbank. It is a great bearer of fruit, and if not too heavily loaded the plums will be large. The color is dark maroon, covered with a light bloom. Quality of fruit, when fully ripe, is fairly good; season, middle of September.

Although Japanese plums are proving quite hardy, strong and vigorous, regular and most abundant bearers, strikingly handsome and attractive in appearance, yet they are indifferent in quality or flavor when compared with the Europeans which ripen their fruit at the same time. Were I planting another plum orchard, and I likely shall, I would put very few, if any, Japanese plums in it.

I have taken The Canadian Horticulturist for many years and like it well.—(Kenneth Cameron, Lucknow, Ont.

You should receive The Horticulturist promptly on or about the first of every month. Do you? If you don't, let us know.

A FARMER'S STRAWBERRY BED

WILLIAM SCOTT, ERAMOSA, ONT.

THE strawberry is perhaps the most highly prized of all the small fruits that come to the table. A very little sacrifice of time and money would suffice to bring fresh strawberries to every farmer's table during the strawberry season, as well as to enable the farmer's wife to put by a store for future use.

The land for my own little plot faces the southeast and is a rich, warm, loamy soil. It is given a generous coat of well-rotted stable manure early in the spring, and plowed, cultivated and harrowed until the manure is thoroughly mixed with the soil. The treatment is much the same as would be the case were the land being prepared for a crop of roots. The amount of preparatory work required will depend largely on the plot of ground at the start. If weeds of any kind appear, further cultivation will be required.

SUMMER CULTIVATION.

About the end of August put the cultivator and harrows on again, getting the soil into as fine tilth as possible; then roll it before planting, which should be done, if possible, after a shower. I leave 3½ feet between the rows and plant 18 to 20 inches apart in the row. For some varieties which propagate rapidly perhaps a greater distance apart would be advisable.

When planting, dig the holes with a spade, spread out the roots and pack the soil firmly about them. After planting, keep the hoe going as often as possible to assist nature in her work. My plants grow in a matted row about 15 inches wide, and each plant has about 4 or 5 square inches of space. Late in the fall mulch with horse stable manure to protect plants during winter.

SATISFACTORY VARIETIES.

The varieties I prefer for table use are Jessie, William Belt, Clyde and Brandywine, all of which may be had at a reasonable price from a reliable grower.

If any farmer is willing to take time to prepare and plant the plot, with a little effort in the way of hoeing and picking, he will be amply repaid for his labor by the rich luscious fruit that will grace his table four or five weeks during the summer.

A Glimpse at Some of Ontario's Noted Vineyards.

This illustration gives an excellent idea of the extent of the fruit intsrests in the vicinity of Winona, Ont., near the extreme western end of Lake Ontario. Portions of the fruit farms of Messrs. E. M. Smith, Ira Van Douzer and R. R. Smith are shown.

MARKETING THE CHERRY CROP

IN some portions of Prince Edward, Hastings and Northumberland counties, fruit growers of late years have considerably increased their cherry acreage. About 25 years ago both red and black cherries were largely grown in these counties, but the black knot destroyed so many orchards that growers became discouraged, and during the last 20 years comparatively few have been produced. Now that it is recognized that there is no difficulty in keeping down the black knot by thorough spraying, greater interest is being shown in the crop and the area under cherry trees is being considerably extended. Speaking on this subject to The Horticulturist lately, Mr. W. H. Dempsey, of Trenton, said that some growers in his section have lately set as many as two or three acres to cherries.

"The only drawback I have found with this crop," said Mr. Dempsey, "is the expense of gathering. Many of the cherries grown in this vicinity last year were shipped to Toronto, Peterboro and northern towns. Girls, I believe, make the best pickers, because they can be obtained more cheaply and are easier to get. I get my neighbors' girls generally to help me with the work. Although they don't need the money, they are generally willing to assist.

ARE GIVEN LIGHT LADDERS.

"To lighten the work for the girls I furnish them with step-ladders that they can handle easily. These ladders are made by myself and are five feet high, enabling the girls to reach fruit ten feet above the ground, which is generally sufficient. The girls pick apples in the same way. The only drawback I find in using girls to pick the fruit is that they are not strong enough to carry the fruit around and load it on the wagons. Men are always required for this work. I used to pay girls 75 cents to $1 a day, but now the common wage is 75 cents to $1.15. In picking apples I have had gangs of girls that would average 20 barrels for each girl a day.

THE BEST TIME TO PICK.

"I prefer to pick the cherries when the fruit is cool, either in the morning when the dew is off, or in the cool of the afternoon and early evening. The trouble is we can seldom do this, as it is generally necessary to put in the full day at this work. By picking in the cool of the day, the fruit keeps much better.

"Aside from the trouble in gathering, cherries compare very favorably in point of profit with any other of our fruit crops. Early Richmond give me the best results. It is the only variety I would recommend to be planted around here. It is hardier than the others, so the buds will stand more frost. Some other varieties are sweeter and a trifle larger, but they winter kill.

"Cherries will be a light crop with me this year. All the varieties had blossom buds, but were destroyed more or less by the severe winter. Two Russian varieties I received as premiums from The Horticulturist have bloomed more highly and were less injured by the winter than any other trees in my orchard. I do not expect to secure 10 per cent. of a crop. Most of the other cherry orchards around here seem to be affected about the same."

In fertilizing my cherry trees I first use barnyard manure, later sowing red clover and finally oats. About the first week in June, when the oats are 6 to 8 inches high, I turn in the pigs. Late in the fall this crop is turned under. A disc harrow is used in the spring.—(John D. Wigle, Kingston.

I would rather take chances on raising grapes for profit than any other kind of orchard fruit, as the crop is more certain and the principal labor is performed at the seasons of the year when one can best afford the time to attend to the vineyard and the crop.—(Aaron Cole, St. Catharines, Ont.

Pruning Blackberries

"SPEAKING from a commercial standpoint," says Mr. A. W. Peart, Burlington, "the leading varieties of blackberries are Agawam, Kittatinny, Ohmer, Snyder, Stone's Hardy, Taylor and Western Triumph. My blackberries are summer pruned in early July. I cut back the suckers to three or four feet high, causing them to send out laterals and form a stout sturdy tree. In March or April I again prune back the longer laterals.

THE BEST RASPBERRIES.

"Since 1895 I have tried 20 varieties of raspberries, and find the Cuthbert and the Marlboro the best. The Marlboro is earlier and firmer and can be readily seen by the pickers. The bushes are not so leafy as those of the Cuthbert.

"Both are large berries. The Marlboro is about ten days earlier than the Cuthbert. Give the Marlboro good well-drained soil, with liberal manuring, and there is no better berry in Canada."

Picking Strawberries

J. O. DUKE, OLINDA, ONT.

A STRAWBERRY patch may be picked twice; sometimes a third crop is profitable. My patches are usually run out by clover, and the third year make a better pasture than berry patch.

I pick in quart boxes, each picker being provided with a carrier holding six boxes. The pickers are given a ticket, on which they receive credit for fruit picked. The number of quarts picked is punched in the margin of the ticket. These tickets, when the numbers have all been punched out, are worth five dollars.

THE BERRIES ARE PICKED CAREFULLY.

I pay two cents per quart for picking, and have it done right. The pickers are required to exercise care both in handling the fruit and in filling the boxes. The fruit is packed in crates holding 24 boxes, and shipped to points north and east, where I always find a good market, my berry season being over before they start to ripen even at London. For varieties I plant mostly early kinds, Bedar Wood, Crescent, Mitchell's Early and Tennessee Prolific being good standard early varieties, with Williams to finish up on. Williams is the best bearer and long distance shipper I have ever grown.

Black Currants Unfruitful

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have about 20 black currant bushes, set out four years ago. They were full of green currants the last four years, but all dropped off. They were full of blossoms again this year. Why do they not bear? There are no insects on them.—(A. S., Winger, Ont.

I am somewhat at a loss to account for the unproductiveness of your black currant bushes. Your experience has been the same as that of a number of others. In speaking of this subject some time ago with Mr. E. D. Smith, proprietor of the large nurseries at Winona, he told me that he once had a number of black currant bushes growing on heavy land on "the mountain" which always bore an excellent crop, and, to increase his plantation of them near at home on what he thought more genial soil, he propagated from these bushes extensively; but when planted in good rich soil below the mountain they proved quite unproductive. He was inclined to believe that it was very much a question of suitability of the soil.

One of the finest crops of black currants I ever saw was growing on heavy clay soil in Algoma. When the bushes are on rich, loamy land they are inclined to produce wood rather than bear fruit. Some have attributed this lack of productiveness to lack of fertilization of the blossoms. This may be the case in some instances, but if this were the cause in your case the green berries would hardly be formed, or, at least, they would not grow to any extent.

I am inclined to believe that the first thing necessary is to get some of the most productive varieties, plant them upon good heavy soil, and do not stimulate an excessive growth of wood; keep the bushes well pruned out so as to allow for the fertilization of blossoms, and guard against the aphis, which is one of the most troublesome insects upon these bushes. If under these conditions the bushes are unproductive, I know of nothing better than to root them up and try again on other land.

Cultivating Gooseberries and Currants

S. SPILLETT, NANTYR, ONT.

IN the June issue of The Canadian Horticulturist Mr. William Fleming, of Owen Sound, advised the stirring of the soil about gooseberries and currants in the spring. I followed this method until about 15 years ago, when the loss of three successive crops of gooseberries after the berries were as large as peas, opened my eyes.

This accounted for entire crops of black currants and Fay's Red currant dropping in the same way. The Shaffer and Columbia raspberries will not tumble off, but the crop is greatly lessened.

My rule now is not to stir the soil about gooseberries or the Shaffer or Columbia raspberries in spring until after the fruit is picked. I have never failed to have a good crop of Pearl and Red Jacket since I have followed this method. My big crops have been when the bushes are kept mulched.

I make it a practise to thin my peach trees whenever necessary, endeavoring to get the work done as soon as possible after the June drop. I thin to not less than six inches apart, which is scarcely thin enough unless the trees have a thorough pruning.—(W. D. Culp, Beamsville, Ont.

The Best Paying Currants

"IN growing red currants," said Mr. A. W. Peart, of Burlington, who is considered quite an authority, to The Horticulturist, a few days ago, "the best money-makers in my experience have been the Wilder, Cherry, Pomona, Fay's Prolific and Red Victoria. The North Star, too, is a good variety, its merit lying in its being late.

"In white currants there are two standard varieties—Imperial and Grape. The Imperial is a larger fruit, but not so productive as the Grape. In black currants the best commercial varieties are Saunders, Naples, Black Victoria and Collins' Prolific.

"As regards cultivation, my practice is to plow to the rows in the fall to form a watershed. In the spring I start cultivation as early as possible, which tends to level the ground down again. Up to ripening time I cultivate lightly every ten days to keep moisture in the soil."

Profitable Returns from Cherries

"CHERRIES do not require as much attention as other fruit," said Mr. A. E. Kimmins, manager for Mr. E. D. Smith, of Winona, to The Horticulturist recently, "but are a little more expensive to pick, as the fruit is so small. Early Richmond for an early variety, and the Montmorency for late maturity, are two of the best kinds. The English Morello is also a good late cherry.

"The Dyehouse matures even earlier than the Early Richmond. These varieties are all hardy and can be grown almost everywhere apples can. From 17 cherry trees of the Montmorency variety on our farm, which are ten years old, last year we procured 192 baskets of cherries which sold at an average of 75 cents per basket.

"These trees have been bearing since they were four years old, and last year's crop was the largest on record."

Care of the Strawberry Patch

J. H. DAVISON, MT. FOREST, ONT.

THE soil in which my strawberries are grown is number 1 clay loam, very dark, with marl and gravelly subsoil. This is thoroughly tile drained every two rods, and the land has a good fall.

The ground I purpose planting to strawberries in 1905 is planted to celery this season, and on this ground no weeds are allowed to seed and very few to grow. It is plowed in the fall and again in the spring, and worked thoroughly. As soon as land is fit it is marked off 4 feet apart, across lot in rows 30 rods long. Runners from last season's growth are planted fourteen to eighteen inches apart in the rows.

The land being rich and clean, they grow rapidly, and if the season is at all favorable they matt pretty thoroughly about 2½ feet. This gives an excellent crop of very large berries if a good dressing of unleached hardwood ashes is given.

As soon as the crop is picked all vines, weeds, straw, etc., are plowed under and the ground sown with rye (fall rye) for fall feed for cattle, and also for feed the following spring. In this way only one crop is picked from each planting. It is cheaper and better to plant every year than to try and clean up an old patch. I plant only one variety, the Williams.

Success With Black Cherries.—"I have 1,000 black currant bushes in bearing. They are a good paying crop when given good cultivation. Part of my plantation has been in bearing for about 15 years, and is not doing as well as formerly. Every spring I trim each bush to four or six stalks, keeping the old wood well cut out and leaving at least two new stalks every season.

My soil is heavy clay. The varieties grown are Lee's Prolific, Black Naples and Black Champion." — George Stevenson, Freelton, Ont.

Grapes That Turn Black

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

Some of my grapes turned black in the bunches last year. Can you give me a cure? —(James Symington, Port Dover, Ont.

This information is not sufficient to enable me to reach a satisfactory conclusion as to what the trouble is. It is quite likely that the disease may be the grape rot, which is a very difficult disease to combat successfully. Spraying with Bordeaux mixture is one of the best preventives. Where the disease becomes serious the diseased berries should be gathered and burned to prevent its spreading.

Landscape Gardening in Cities

P. G. KEYES, OTTAWA.

PEOPLE who are compelled to reside in the city upon lots of small dimensions cannot undertake a system of landscape gardening in its broadest scope; nevertheless, there are a few rules and fundamental principles that are quite as applicable to the small lot as to the great estate.

Of the two kinds of landscape gardening, the natural and the formal, I prefer the first mentioned. This consists in re-arranging existing natural forms with a desire to create new beauties, to combine flowers, shrubs and trees so as to produce an æsthetic effect. In the first place it is necessary to avoid straight lines.

It is a mistake to fill every available space with trees and plants, but instead, try to create a picture, using the green lawn for your canvass and framing the whole by a well massed border, planting tall shrubs or trees to screen objectionable features near by, and low plants so as to appropriate to your view some desirable feature of the surroundings. Use hardy plants and shrubs for the borders and plant groups, not individuals. Nature rarely scatters her plants.

HOT WEATHER PLANT AND FLORAL NOTES

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

A GOOD method of disposing of a few window or house pot plants during the summer is to place the pots with the plants in them in an ordinary window-box made deep enough so that the rims of the pots are about on a level with the edge of the box. Fill in the spaces around the pots with common moss or sphagnum moss; the latter can be obtained at any florist's. The moss should not be packed too tightly in the boxes or it will rot and decay.

I have known sawdust to be used for packing around the lower part of the pots, about an inch in depth of moss being used on top of the sawdust. The main idea of putting either of the materials mentioned around the pots is to prevent a too rapid evaporation of moisture. This evaporation is one of the great troubles plant growers have with pot plants when they are stood out singly on a window sill or on a veranda, as we often see them, and where they often suffer for want of sufficient moisture at the roots, no matter how frequently they are watered. By filling in around the pots as suggested, the plants give very much less trouble in watering than if stood about singly, and the plants thrive much better, as more natural conditions are given them in this way. Besides this, a tastily filled box of even ordinary window plants, with its carpet of green moss, has a very pretty natural looking appearance in a window. This plan of mossing window boxes is particularly suited for houses that have little or no garden accommodation for pot plants in summer.

Azaleas, palms, fuchsias, aspidistra, leopard plant *(Farfugium grande)*, umbrella plant, tradescantia or Wandering Jew plant, and ferns are among the plants that would do well in the mossed box, more especially in windows or verandas facing the east or north. Agaves, cactus, echeverias, vincas and similar plants succeed well in south and west aspects. Care should be taken to have holes bored in the bottom of the box to allow of free drainage, or the moss will soon become soddened and rotten, a condition not desirable either for the health of the plants or their owners.

HOUSE PLANTS IN JARDINERES.

The fancy jardinieres so extensively used now for pot plants in house decorative work, are often the cause of the premature decay and loss of pot plants. Too often the plants are kept constantly—oftentimes when not necessary—watered, and no thought is given as to what the surplus water that the plant does not take up is doing, until perhaps the plant begins to look sickly, or maybe the unpleasont odor of stagnant water is detected, or in some very neglectful cases that I have known, the surplus stagnant water has actually run over the top of the jardiniere before it was noticed. More plants are injured both in winter and summer, especially palms, by the accumulation of stagnant water in jardinieres than is supposed, the summer months being the worst in this respect, as there is no fire or artificial heat to dry up surplus moisture.

Examine plant jardinieres at least once a week, and throw out all the water found in them, and rinse them out with clear cold water. The plants, as well as the health of those living in the house, will not be endangered, as undoubtedly they are where plant jardinieres are neglected and not looked closely after.

The same remarks will also apply to cut flower vases and jardinieres. The water in these should be changed every day. If the ends of the flower stems are cut off about an inch every day it will help to preserve the flowers for a longer time than if the stems are not cut off.

Dahlias should have sufficient water given them at the roots to keep the soil always fairly moist. Soapy water is beneficial to dahlias applied to the soil near the roots. A solution of liquid manure made by diluting a pail full of cow manure in about ten gallons of water—or in that proportion if a smaller quantity is required—will also help dahlias considerably. An application of the liquid manure once a week will benefit them. Dahlias like a moist atmosphere to grow in. The foliage should be sprinkled or syringed every day if possible during very hot dry weather. Early morning or evening is the best time to sprinkle them, clear cold water being the best for this purpose. If large specimens are wanted on the dahlias, all the small weak stems should be cut out, as from two to four main stems is sufficient if large blooms are required. Some of the side or lateral bloom buds can also be picked off if the buds are very weak. If quantity rather than quality is required, more growth can be left on the plants. The growth of dahlias should be well staked up, as it is very brittle and liable to be damaged by storms.

ASTERS.

A mulch of long, strawy manure, or of short lawn grass trimmings spread thinly about an inch in depth around aster plants will help them to develop their flowers in very hot dry weather, and the plants will not require as frequent or copious supplies of water when the soil around them is well mulched. This mulching process is also very beneficial to newly planted fruit or shade trees, especially during the hot months of July and August.

AGAVES.

These succulent plants, which are often misnamed cactus, require very little water even during summer time. Being natives of tropical countries, where they grow and thrive on the almost arid deserts, where oftentimes there is no rainfall for months at a time, they are particularly adapted for exposed sunny positions on the lawn. Good drainage at the bottom of the tub or pot they are in, and not too frequent waterings, are essentials necessary to be thoroughly successful with these plants. More agaves are injured or perhaps eventually killed by giving them too much water than from any other cause. Watering them once a week, even during the hottest weather, will usually be sufficient, unless the tub or pot they are in is very full of roots.

There is no class of plant that gives the lawn a more tropical looking appearance in summer time than a few agave plants. There are a great many species of agaves, the most common and probably the most serviceable being the plain green variety, Agave Americanus, or the variegated type of the same species, Agave Americanus variegata. The greatest objection to these agaves is that they are slow growing, and the points and edges of their thick fleshy leaves are very prickly, which make them difficult to handle.

The greatest enemies to successful agave culture are over-watering and a continued low temperature and frost, although the first light frosts of autumn or the white frosts of spring seldom injure them, as the thick fibre-like coating of their fleshy leaves is able to resist two or three degrees of frost very effectually. Agaves can be kept over winter in a warm, fairly well lighted cellar or basement. The dry heat of a furnace is not as injurious to them as it is to many plants. A dark, cold, damp cellar does not suit agaves in winter. If the plants are small it is better to keep them in the window in winter and give them very little water than to put them in a damp cold cellar.

OLEANDERS.

These plants like to be treated in almost a directly opposite manner to the agave, especially in summer time, as they like a good

supply of water at the roots and a partially shaded position during the hot summer months. An application of liquid manure, as recommended for dahlias, will also benefit them in summer, especially when the flower buds are beginning to show. The liquid manure application should be discontinued as soon as the first flowers open, or after the end of July, as the fertilizer would tend to induce a late sappy growth that would be difficult to winter over in a basement or cellar, where oftentimes these plants have to be kept in winter time. Oleanders are very subject to the scale, a small insect that infests both the foliage and stems of the plants, and will, if not checked, destroy the plant. On the oleander they are usually found at first on the underneath side of the leaf, close to the mid-rib, but are often found on the main stems of the plants. When quite young they are of a whitish color, becoming brown and almost black as they reach their full growth. It is in the earlier stages of their growth they do the most harm. A good sponging with a strong solution of soapy water first, and then given a fairly hard brushing with an old tooth brush, so as to move all the scale from their position on the plant, is the best method to rid plants of scale. The great point to be gained in eradicating the scale from any plant is to rub the scale so as to move it from its position, as a scale once moved cannot attach itself to the plant. It is an old saying amongst plant growers, "Move a scale and it must die." The plant should be sponged with clean water immediately after the soapy water has been used on it, so as to remove any soap stains left on the foliage.

The Prize Winning Garden in the Lady Minto Competition.

The main portion of the garden which won first prize in both the amateur and professional classes in the Lady Minto garden competition, held in Ottawa last year, is here shown. It is owned by Mr. W. G. Black, who may be seen in the illustration. Mr. Black has but little ground around his house, but he makes it a place of beauty and a joy to all who see it. His specialty is roses, of which he has a large number of varieties. The fact that there was strong competition for first place is proof of Mr. Black's ability as a gardener.

OUR COMMON GERANIUM

CORA B. MORSE.

"Geraniums! Geraniums!
With brave and steadfast eyes,
Ye face the darkest day that comes,
The bluest, sunniest skies;
For shade and shine are one to thee,
And come what may your blooms are free."

EVERYONE calls the geranium a common flower, yet there are those among us who can remember the furore the bright red flowers created when they first became known. It is a strange fact that the geranium, which grows almost everywhere and under about every condition, grows wild in but one corner of the earth, this being on the Cape of Good Hope, where it was found by the Dutch as far back as 1652, when over 600 species were discovered.

The ideal geranium is a thrifty strong grower, having thick woody stalks, many branches, making a broad circular plant, with branches from nearly every joint. Leaves should grow quickly and luxuriantly; flowers should be well shaped and full, broad and round. But, how frequently we see the plants straggling for an existence of some kind, often more dead than alive. Some geraniums may be seen at a standstill for months, one leaf dropping off as soon as a new one appears. Others are "nothing but leaves," while many remain splendid in their gay colors the whole summer through, but when winter comes have not a solitary blossom to gladden the hearts of those who care for them daily.

If grown as pot plants, the geraniums offer their greatest difficulties. One of the most frequent mistakes made in growing geraniums for pot plants is over potting them. Don't put a small healthy looking plant, only large enough to have a 3 or 4-inch pot, into a 6 or 8-inch one. If you do, you may expect them to stand month after month, scarcely growing an inch in that time. The first step then is to provide small pots. Geraniums from 4 to 6 inches high require a pot only about 3½ to 4 inches in diameter. Drainage is the next essential, and a most important one. Drainage material is always easily obtained, a layer of broken pieces of pots, small stones, charcoal or even pebbles being all that is required. Through the chinks between these bits all surplus moisture will ooze, passing out of the small hole in the bottom of the pot. When placing the plant in the pot, leave about three-quarters of an inch at the top which is not filled with the soil.

A German authority gives as the best potting soil for geraniums one-third clean sharp sand, free from clay, one-third thoroughly rotted cow manure and one-third loam. Water plants well after potting, set them away in a dark closet, and leave for three or four days. Bring gradually to the light, not giving full sunshine for another week. Don't give your geraniums in pots too much water—they do not like it, neither do they require it. Water them when they need it. When the earth about the top of the plants is dry, give them a thorough soaking. This is easily and satisfactorily done by placing the pot in a basin or pail of water, leaving it there till it has soaked up all the water it needs.

As for potted plants, the ground must be well drained and in a good mellow condition. If it is a dry season, or a hot summer country, a mulch about the plants is found very desirable. The old fashioned scarlet, whites and good pinks are always in demand for bedding. Better still a bed with one color alone, or with colors harmonizing well, than a variety of colors of any and every hue.

In dusty times, spray the plants and water the leaves at night. The plants do far better cleaned of the dust they catch during the day. Keep the ground soft and do not let it become dry, baked and hard around the plants.

A TALK ON PANSIES

SOME exceptionally fine large pansies were exhibited at the June meeting of the Toronto Horticultural society by M. Fogarty, of Toronto. A number of those shown were fully two and a half inches in diameter. So much interest was taken in the exhibition that a talk given the same evening by Mr. G. H. Mills on the growing of pansies was much appreciated.

"In growing pansies," said Mr. Mills, "a cold frame is needed; that is, a small piece of ground lined with a box, but not necessarily covered with glass. The glass does not need to be put on the box until real cold weather sets in. Before planting, secure a box about 6 feet square, or larger if a larger number of plants are to be grown. Sow the seed in a drill. One row of seed across one end of the box is all that will be required. Cover the seed with about one-quarter of an inch of earth. It is possible to secure 30 to 40 distinct varieties of pansies.

"After the seed has sprouted and the plants have two or three leaves, it is time to transplant them in the box. Each plant should have at least 4 inches of space around it. The frame in which the pansies are kept seldom needs covering until after Christmas. During the winter, should a solid week of soft weather come on, the cover may be taken off the frame to give the plants air."

Being asked if he kept his pansies in the dark. Mr. Mills replied that he did. "A glass cover," he said, "is not necessary, as a door made of ¼-inch stock makes as good if not an even better cover." Asked if he secured his seed in England or obtained it here in Canada, Mr. Mills replied it was possible to obtain good seed in this country.

"After you take the plants out in the spring," he continued. "do not let them dry out. See that they are given plenty of water. Keep the blossoms well picked, so that no seed can form, and they will bloom continually until cold weather. In the old country there are certain strains that growers do not allow to go to seed, propagating them instead by means of cuttings. These cuttings may be taken off in August by breaking off the top three joints. Put these in the ground, and they will root in two or three weeks, after which they should have the same treatment in the cold frame as the seedlings received during the winter. When planting cuttings, do not set them where the sun will be likely to wilt them, as they need a little shade and plenty of water. Pansies like a rich soil; a good sandy loam is about the best soil for them."

BORDER FLOWERS

"BORDER FLOWERS" was the subject of an interesting illustrated address given recently before the Guelph Horticultural society by Mr. J. O. McCulloch, president of the Hamilton Horticultural society. People can, in Mr. McCulloch's opinion, be more easily interested in flowers by showing them pictures of actual growing plants than by talking about them. He therefore had prepared a set of lantern slides showing for the most part flowers grown in the neighborhood of Hamilton.

The first pictures were of spring flowers, more particularly the Narcissi, as these are not grown to the extent they should be. The requirements are a soil rich in humus, but no barnyard manure should come in contact with the bulbs. Rotted leaves, with the addition of a small quantity of bonemeal, are the best fertilizers. A good half-dozen varieties are the Emperor, Empress, Barri Conspicuus, Sir Watkin, Poeticus and

Poeticus Ornatus, but the number of varieties is very large, and it is really all a matter of taste.

EARLY SUMMER FLOWERS.

Passing on to the early summer flowers. pictures were shown of Delphiniums, Foxgloves, Campanulas, and many others. The Campanulas were particularly recommended. Many failures with them, however, are caused by a lack of knowledge as to whether the plant grown is an annual, biennial or perennial. Campanula Medium, the true Canterbury Bell, is a biennial, and seed must be sown each season to have flowering plants the next. Of perennial varieties, Persicofolia, Moerheimi, Carpatica and Pyramidalis were mentioned. Perennial Phlox is one of the best summer flowering plants and is easily propagated by cuttings taken in May or June.

Many varieties of annuals were shown, including asters, marigolds, scabiosa and antirrhinums. The last, while strictly speaking a perennial, can only be grown as an annual in this climate. Of fall blooming plants Japanese Anemones, Pyrethrum Uliginosum, Boltoma Asteroides and others were shown. Marigolds and antirrhinums were particularly mentioned on account of very late blooming.

July Care of Dahlias

E. F. COLLINS, TORONTO.

NOW is the time to watch your dahlias and see that they do not suffer for want of water or stimulants. They are very gross feeders, and if you desire fine flowers you must feed them with manure water and attend to tying them up to stout stakes to prevent the wind blowing them about.

It is best to only allow about one stem to a plant if they are rather weak, but if good and stout, then two or even three may be allowed to grow, always keeping them tied up. When the flowering time arrives a little disbudding must be done.

The buds are usually produced in threes, and as the centre one generally makes the best flowers, it is wise to pinch the other two off, which will result in a much better bloom.

DIFFERENT VARIETIES.

The dahlias in cultivation to-day are divided into six distinct classes, viz., show, cactus, fancy, bedding, bouquet and single. These distinctions are somewhat difficult to define. The show varieties comprise all self-colored flowers, and those with dark colored tips. The cactus variety is now taking a place well to the front for cutting and decorative purposes, and appears to have derived their name from the fact that the Mexican variety, Dahlia juareryii, is the original type. The cutting of blooms from the cactus, and single varieties, does not injure or check them in any way. To comprise a fancy it must be striped or flaked with two distinct colors.

The bedding dahlias are free branching and dwarf, and have their flowers well above the foliage. The bouquet are sometimes known as the Pompoms, which have small but very double flowers, and produce large quantities of them.

School Children in the Garden.

In many sections of Ontario excellent work is being done in the direction of interesting school children in the growing of flowers. The illustration shows boys of the junior fifth class of Church St. School, Toronto, at work preparing a bed for planting Asters. The photograph was taken on Flower Day which was obse ved on June 3rd.

THE HISTORY OF THE ROSE

EDWARD TYRRELL, TORONTO.

THE history of the Rose is a subject worthy of most careful study and treatment. I have been at a loss to find a starting point, have searched many books to learn something of its history, but have not been very successful. The most ancient quotation I have read is a translation by Mr. Wm. Gaul from the writing of Sappho, the Greek poetess, who was born 600 years B.C.:

"Would love appoint some flower to reign,
In matchless beauty on the plain,
The Rose (mankind will all agree),
The Rose, the queen of flowers should be."

It is indisputably a flower of antiquity, although it graces alike the temperate regions of Europe, Asia, Africa and America. It has been a symbolic flower in every age, it was renowned for its medicinal properties, was abundantly used in joyous festivities and religious ceremonies, and enters into commercial life to a very large extent. Dean Hole writes, "the roses of all lands are here, but so changed, so strengthened by climate, diet and care, so refined by intermarriage with other noble families, that they would no more be recognized by their kinsfolk at home than Cinderella at the ball of her sisters." Persia, China and Japan are the countries from which we have received our best originals. The Rosa Centifolia (Cabbage or Province Rose), the oldest of all, and one which exceeds all others in its beauty, form and odor; from Persia, 1569. Moss Rose, from Persia. Banksian Rose, named after Lady Banks, from China. China Rose (Rosa Indica), the old familiar monthly rose, from China, 1789. Fairy Rose (Lawrenceana, Miniature or Toy Rose), China, 1810. Tea Rose (Indicata Odorate), pink, 1819; yellow, 1824; the most celebrated group, and the true aristocrasy of the Rose world, from China. The first person to exhibit tea scented roses was the Rev. Mr. Hillingsworth in an exhibition at Hanover Square rooms, London, in 1855. Noisette Rose, named after Mons. P. Noisette, originated in America, supposed to be a cross between Musk and China. Musk Rose (Rosa Moschata), Persia, 1600. Polyantha Rose (Rosa Multiflora), Japan. Turner took the first prize in 1893 for the Crimson Rambler of this class. Ayrshire Rose (Rosa Arvensis), Europe. Stocks for budding are from the Dog Rose or Briar, (Rosa Carmina), Manietti or Wild Rose, from Italy about 1830.

To the French we are indebted for some of the choicest ornaments of the rose garden, as the rose is a pre-eminent object of horticulture with them, and the skill of the French has originated many new and beautiful varieties, yet England is considered to be the true home of the H. P. rose, and in growing perfectly those already known none can surpass the British. The English climate is better suited to its perfect development.

That the title of "Queen of the Flowers" is no modern assumption for the rose, has ever been seriously questioned, yet we find a Scotch poet (Dunbar) who lived about a century before Shakespeare championing the title for the rose, for he asserted the dignity and beauty of the rose to be superior to the Thistle of Scotland.

The rose appears to have first attracted attention for its medicinal properties. Pliny wrote about it more fully than any other of the ancient writers, and his system of cultivation is as necessary to-day as when he wrote, and for the garden is just as essential. He says that the genuine rose is indebted for its qualities to the nature of the soil, and considers that roses without perfume are not genuine roses. Pliny's writings, however, refer mostly to the medicinal properties of the rose, and he gives so many recipes that one would think the rose would remove or cure all the ills flesh is heir to. But a German writer (Rosenburg), in 1631,

surpassed Pliny by publishing a book of 250 octavo pages, giving receipts and describing the curative properties of the rose for almost every known disease.

Travelers who have visited Persia say that in no country of the world does the rose grow in such profusion as in Persia; it has been called the fatherland of the rose. In eastern literature there are many chaste and beautiful allegories. Here is one: "As this dark mould sends upwards and out of its very heart the rare Persian Rose, so does hope grow out of evil, and the darker the evil the brighter the hope, as from a richer and fouler soil comes the more vigorous and larger flower." In a Persian legend we read that Sadi, the poet, when a slave, presented to his tyrant master a rose, accompanied with this pathetic appeal: "Do good to thy servant whilst thou hast the power, for the season of power is often as transient as the duration of this beautiful flower." This melted the heart of his lord, and the slave obtained his liberty.

GROWING VEGETABLES UNDER CLOTH

W. T. MACOUN, HORTICULTURIST, CENTRAL CANADA EXPT. FARM. OTTAWA.

AT the Central Canada Experimental Farm last summer an experiment was tried in the raising of vegetables under cloth. A small enclosure, 24 x 14 feet in area, was made in which different kinds of vegetables were grown.

The same kinds of vegetables were raised just outside the enclosure for purposes of comparing the two. Owing to the very cool, wet summer, which was unfavorable to a test of this kind, the results in most respects were by no means conclusive, but the following notes are interesting and may be suggestive. All the vegetables inside grew better than those outside, and some continued to grow better until the end of the season.

SOME INTERESTING RESULTS.

Beets—The tops were about as good inside as outside, but when pulled it was found that the crop of roots outside weighed 22½ pounds, while that inside was only 9 pounds.

Lettuce, sown June 10.—The plants grew almost equally as well inside as outside the enclosure. Outside they were from two to four days earlier than inside.

Radish, sown June 10.—Radish was ready for use inside, fully three days before those outside. The radishes inside were perfectly free from maggots. while those outside were practically worthless. Those inside grew to be a large size before losing their crispness.

Beans, sown June 10.—The beans were ready for use three days earlier inside than outside, and the plants were about as vigorous. There were 11 quarts of green beans inside, as against 14 quarts outside.

Egg Plants, Water Melons and Musk Melons, planted June 10.—These were all failures as regards crop, both inside and outside, owing to the wet and cool summer, but all plants grew well in both cases. Hand pollination would be necessary to insure a crop even in a favorable season. as few or no insects could get into the enclosure.

Cauliflower, planted June 10.—The root maggot attacked those outside badly, while those inside, though injured some in the cold frame before transplanting, were not affected inside the enclosure.

Cucumbers, planted June 10.—Although the plants grew well, no cucumbers set inside until autumn, at which time a few rents in the cloth permitted insects to enter. There was only a very small crop outside owing to the unfavorable season.

Tomatoes, planted June 10.—The plants grew well inside, but were never as robust

as those outside. The first tomatoes ripened inside on July 15 and outside on July 21, six days later. The crop of ripe fruit was 55 pounds 2 ounces outside, and only 15 pounds 8 ounces inside, but there was twice as much ripe fruit before the middle of August inside as out.

Corn, planted June 10.—This grew more rapidly inside than out at first, but later on was not as robust.

NO INJURY FROM FROSTS.

The rain came through the enclosure as a mist, and hence the soil was not compacted the way it was outside. Light frosts which injured vegetables outside did not injure those inside. While the vegetables were growing, daily records, with the exception of Sundays, were kept of the temperature inside and outside the enclosure. The average temperatures during the summer months up to September 1 were:

		No. of Readings.
Outside, 7 a. m.	58.4	26
Inside, 7 a. m.	58.3	26
Outside, 1 p. m.	72.8	68
Inside, 1 p. m.	76.23	68
Outside, 4 p. m.	74.7	52
Inside, 4 p. m.	76.9	52

As will be seen from the above, the temperatures averaged a little higher inside than out. The greatest difference was 9 degrees.

THE VEGETABLE GARDEN IN JULY

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

WEEDS! Keep them down whilst they are young by the constant use of the hoe. Surface stirring the soil amongst growing crops not only keeps down weeds, but keeps the soil cool during the hot weather. Surface stirring the soil without watering is, generally speaking, more beneficial to plant life during hot weather than giving water to plants without keeping the surface of the ground well cultivated and loosened up. Keep a loose earth mulch on the top of the soil around all growing crops.

It is best to water all newly planted planted plants once, as soon as they are planted. It settles the earth around the roots and gives them a fair start. Hoe a little loose soil over the moist earth as soon as the water has soaked away. This will help to retain the moisture in the soil much longer than if the moist soil was left exposed to the sun and air.

SOWING AND PLANTING.

There is not much to be done in sowing and planting during July. Late cabbage and cauliflower should be planted at once if not already attended to. Late celery should be planted as soon as possible. A spraying or two with Bordeaux mixture without paris green will help to prevent "rust" in celery. The spraying should be discontinued as soon as the earthing up operation is commenced.

Celery should be planted early in July if wanted for autumn use, although fairly good celery can sometimes be obtained by planting as late as the first week in August. Celery can be planted after early peas or potatoes have been taken off, but the ground must be well manured before planting. Well rotted short manure is necessary. On very rich well prepared land celery can be planted 12 inches apart between the rows and 8 inches apart in the rows. This method necessitates not only very rich land, but also compels the use of land tile, cardboard, boards or some similar material to be used for bleaching the celery for autumn and early winter use, as earth could not be obtained or easily used for bleaching purposes if the rows were as close together as mentioned. As a rule, and especially where well rotted stable manure is scarce, it is best to dig out a trench about 12 inches in depth

and about 10 inches in width. Put about six inches of well rotted manure at the bottom of the trench, fill in about 5 or 6 inches of the top or richest soil taken out. This will leave a slight hollow or depression where the row of celery is to be set out. The hollow or depression will allow of the celery being easily and thoroughly watered during the summer months. If it is intended to bleach the celery with earth the rows should be at least 4 feet apart. The plants should be set about 8 inches apart in the rows. Double rows are sometimes planted where space is very limited. This is done by planting two rows about 6 or 8 inches apart. The plants should be set 10 or 12 inches apart in each of these two rows and should be planted diagonally and not directly opposite to each other, in the following manner, * * * * * * * so that each plant forms the extreme point of a triangle. The trench, however, for a double row must be dug at least 12 inches in width.

Freshly planted celery should be kept well watered and shaded from the hot sun. In fact, during the hot days of July and August celery will be much benefited if a 12-inch board be placed over it on hot days for a few hours in the middle of the day, and removed after the hottest part of the day has passed. Any other material that will afford shade will answer as well as boards for the purpose of shading. All the soapy water should be saved and poured into the celery trench, as it is some benefit as a fertilizer as well as giving moisture to the plants. Although celery is very fond of a moist condition of the soil it is best not to plant or handle it when the foliage is wet. All celery growers seem agreed on this point, as handling it when the tops are wet induces rust and rot. A spraying of Bordeaux mixture without the paris green every two or three weeks during July and early August will prevent to a great extent the attack of rust. Paris Golden Yellow, Boston Market and the Giant Pascal are

Celery Beds at the Central Experimental Farm, Ottawa.

In the May, June aad July issues of The Horticulturist considerable attention has been given to the growing of celery. While good money can be made raising this crop, success depends on close attention, suitable conditions and hard work. The illustration shows the celery beds at the Ottawa Experimental Farm.

good varieties to plant. The White Plume variety and Paris Golden Yellow are more subject to rust than the other varieties mentioned.

There is time yet to put in a row or two of dwarf beans, and some corn for late use. Sow the early varieties of corn, such as the Cory and Country Gentleman varieties, as these mature quickly. There will be scarcely time for the late varieties, such as Stowell's Evergreen, etc., to produce a crop, unless very favorable weather is experienced during early autumn.

BEANS FOR PLANTING

The best kind of beans to plant now are the Early Six Weeks and Early Valentine. These are both quick growing varieties and green in color, making them more useful for pickling than the yellow wax beans, if there is a surplus of them for table use.

If really good leeks are wanted they must be planted out in a trench prepared exactly as recommended for celery. To secure the long white stems that make the leek so valuable for cooking as a vegetable, they must be watered and earthed up exactly in the same way that celery is grown. Leeks grown in this way are considered by many to be far preferable to onions when boiled. It is seldom that good well grown leeks are seen either in our markets or in private gardens.

Potatoes should be sprayed once or twice during the season when in full growth, with Bordeaux and paris green mixture. It will not only help to keep down the bugs, but will also destroy the fungus that produces the potato rot. Put the mixture on when the vines are dry.

Burn the old pea vines as soon as the last peas are picked. This will help to eradicate the pea weevil or pea bug that has become so destructive a pest to farmers as well as gardeners.

A WHOLE HOST OF INSECT ENEMIES

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have a number of Early Jersey cabbage plants set out in the garden. The ground was fall plowed, but in cultivating this spring I saw a number of large white grubs. What shall I do to prevent them from cutting the plants? What shall I use as a preventative against caterpillars on my cabbage plants? Should the grub cut the stems of my tomato plants what shall I do?——(E. G. Carp, Ontario.

It is a difficult matter to deal with white grubs in the soil, as one never knows just where they are going to prove troublesome. Usually the best remedy is to dig them out and destroy them wherever they are seen. They usually show their presence below the ground by the injury to the plants above ground, so whenever a plant is found dying you may look for white grubs at the roots.

Sometimes to prevent these and cut worms from cutting off the plants, a small band of stiff brown paper is inserted in the soil around the plant, not so deeply as to interfere with the roots, but merely to keep off worms in their attempt to reach the plant. After the land has been two years under cultivation from the sod, the white grubs are not likely to give any more trouble, as the Eggs from which they develop are laid by the May beetles in soft land.

The best protection against cabbage caterpillars is to spray with paris green or hellebore. Some have dread of using these poisons on plants like the cabbage, which are used for food, but when the method of heading the cabbage is understood it can readily be seen that none of the poison is enclosed in the head, but is instead deposited on the outer leaves, which are stripped off when the cabbage is prepared for the table. When tomato plants have been cut off by the worms there is nothing else to do but replant or patiently bear the loss.

The Canadian Horticulturist

The Leading Horticultural Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share in its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Postoffice or Money Express Order, or Registered Letter. Postage stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in Towns and Cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

FRUIT EXPERIMENTAL ORCHARDS WANTED.

Growers interested in the fruit possibilities of the Niagara peninsula are urging the Dominion department of agriculture to establish an experimental orchard, on a pretty extensive scale, somewhere in that portion of the province. These efforts are to be commended, but one argument that is being used by some of those who are active in the matter, should be dropped. With the object of strengthening their case they have claimed that the orchard at the Central Canada Experimental Farm at Ottawa is out of the fruit belt, that it is on very poor soil, and that generally it is not accomplishing the good it might were it located somewhere in the Niagara district. As this contention has been attracting considerable attention it may be well to examine the situation closely.

While it must be admitted that the orchard on the farm at Ottawa is rather exposed and that the soil is by no means ideal, most of it being a light sandy loam, with a compact sandy subsoil, the fact remains that most of the hardy varieties of fruits do well in it, and there is little actual proof that the soil is unsuitable for most of the fruits that will succeed in the climate of that district. So many varieties of apples, pears, plums and cherries tested at Ottawa have not proved hardy, and the orchard presents a very broken appearance. To one not acquainted with the circumstances the blanks in the orchard where trees have died would certainly lead to the conclusion that the soil was the principal cause. It has, however, been found that varieties which do not succeed at Ottawa do not succeed in places where the climate is similar, whatever the soil. This proves that the conditions are not as unfavorable as might be imagined from appearances. A poor soil for experimental work is, in some ways, to be desired. Most of the tests with cover crops, spraying mixtures, methods of grafting and other experiments connected with horticultural work can be done as well at Ottawa as in a more favored section. There is, furthermore, the fact that as the apple trade is of the greatest importance to this country, the Niagara district has no more right to a station than the great apple, pear, plum and cherry growing districts along the Georgian Bay and Lake Ontario.

The truth is there is room for experimental orchards both at Ottawa and in the Niagara section, and possibly, also, in the Bay of Quinte and Georgian Bay districts. It is to be hoped the Dominion department of agriculture can be induced to take up this line of work. Care will, however, have to be taken to see the operations of the Ontario fruit experiment stations are not unnecessarily duplicated.

SHOULD THE ACT BE CHANGED?

It is now practically assured that there will be a meeting of delegates from the horticultural societies of the province at the time of the big fruit, flour and honey show to be held in Toronto next November. A matter which may well engage the attention of this gathering is the basis on which horticultural societies receive their government grants. In the act granting government aid to provincial horticultural and agricultural societies both are placed in practically the same class. If a horticultural society is established in a town or village it means that the government grant to the agricultural societies in that division is reduced by the sum the horticultural society receives.

There are a number of places in the province where live, active horticultural societies are needed, but their establishment has thus far been blocked by members of the local agricultural society or societies who do not want to have their government grant reduced. In some sections where horticultural societies have been formed it has only been at the expense of hard feeling between the local societies. There are other sections where the horticultural societies have been induced to use all their funds to assist the horticultural exhibits at the agricultural society's annual fair. While this is good work in its way, it is not nearly equal to what can be done by a live horticultural society working along the lines of those societies whose methods of procedure have lately been described in The Horticulturist.

There is a large field for work in the province for both agricultural and horticultural societies, and the establishment of one should not detract

from the possibilities of work open to the other. General dissatisfaction is being expressed with the work of many of our agricultural societies, and a change in the act granting them aid seems probable in the not very distant future. Now is a good time for the officers of the horticultural societies to consider this whole subject. The convention proposed for next November will afford their representatives an opportunity to consider the matter fully.

HOW OUR READERS CAN HELP.

The management of The Canadian Horticulturist is endeavoring to publish a magazine that will be of direct value to fruit growers and all interested in horticultural subjects. As our readers must have observed, the amount of setting in each issue has lately been increased, and more attention is being given to all sides of the fruit and general horticultural interests, while every item each month is fresh, there being no clippings from other magazines or papers. If our readers and that section of the public which is interested in horticulture will show their appreciation by rallying to the support of The Horticulturist, the only magazine of the kind published in Canada, it will soon be possible to considerably increase the number of pages, add other departments, and make a number of further improvements.

There is one way in which readers can materially assist the management, viz., by buying from our advertisers and telling them that they saw their advertisement in The Horticulturist. This will encourage advertisers to continue and even enlarge their advertisements, which will mean more money for the management and the desired improvements in the magazine. Only high class advertisements from reliable firms are accepted. During the past two months several advertisements which savored of the fake nature, which had crept into The Horticulturist, have been rejected and will not appear again, although the money offered for their publication has been needed. Help us to publish a horticultural paper that will be a credit to Canada by telling your friends about the magazine and patronizing our advertisers.

Marketing Small Fruits.—Currants are handled in baskets and in quart boxes put up in crates. I have tried both ways, and find a better margin of profit from using the quart box in the 24-quart crate. In fact, all currants and berries pay best when put up in quart boxes and crates. In selling grapes I use a basket which holds two and three quarter quarts, and find that size of package pays the best.—(A. W. Peart, Burlington, Ont.

We advertise in a large number of newspapers in Canada and can truthfully say that we obtain better results from our advertisement in The Canadian Horticulturist than from any other.—(The Smith & Reed Co., Dominion Nurseries, St. Catharines, Ont.

A WELL PRESENTED CASE.

The fruit growers are to be congratulated on the excellent case they presented to the railway way commission. The transportation difficulties which have, to use the words of President Bunting, "harassed the fruit growers of the province for a number of years," were set forth so clearly, the proofs offered were so positive, and the spirit in which the evidence was given was so free from petty spite of any kind it was apparent, almost from the very start, that the commissioners were considerably impressed by the facts presented.

The praise given Mr. Bunting by Hon. Mr. Blair and Hon. Mr. Bernier for the clear and moderate manner in which he set forth the case of the fruit growers was well deserved. The evidence of Messrs. E. D. Smith, M. P., H. W. Dawson and Ex-Mayor Graham was also given in a manner deserving of every commendation. The whole case was handled so ably as to show plainly the care with which it had been prepared and the great amount of time those interested in it must have given the matter. Even if the fruit growers do not succeed in securing all the redresses asked for, an excellent start towards an improvement in existing conditions has been made.

Fruit growers owe considerable to the magazine, Physical Culture. This monthly, which is the foremost of the kind published, is constantly drawing attention to the value of fruit and vegetables as a food. The average person, according to Physical Culture, eats too much. If instead of eating hearty meals three and, as some people do, four times a day, more would satisfy their hunger by eating a little fruit they would both feel and be the better for it. Eat more fruit and vegetables and less meat is its constant advice. There is a great deal of common sense in what Physical Culture says. If the general public would only follow this advice it would be a splendid thing for the fruit industry.

Quite a little is being said by fruit growers in regard to which are the best sizes of boxes and barrels for the shipment of fruit. In this connection one point deserves attention. The two baskets most commonly used for the shipment of plums, cherries, etc., are the 11-quart and the 6 2-3 quart. The general public is inclined to consider the smaller package a half size of the larger and to refuse to pay more than half the price of the larger basket for it. This, of course, spells loss for growers who use the smaller basket. An effort should be made to secure the adoption of a straight 5½ or 6-quart basket.

There are a large number of horticultural papers published in the United States, but only one in Canada, and that is The Canadian Horticulturist. Help us make it a credit to Canada by recommending it to your friends and patronizing our advertisers.

THE CANNED FRUIT INDUSTRY IN CANADA

"One of the greatest difficulties Ontario fruit growers have to contend with is the ow prices at which dates, prunes, dried apricots, pears, etc., are shipped here from the south and California, and sold on our Canadian markets. The duty on this fruit is so low that it is no obstacle to the free sale of these goods, and consequently these goods are serious competitors against our canned Ontario fruit and vegetables."

These views were expressed recently to The Horticulturist by one of the officers of the Canadian Canners' Co., Hamilton. "Another difficulty," continued Mr. Innes, "lies in the fact that our Canadian cities are so small the demand for our canned fruits is very limited. Were the 35 canning factories owned by our company to work at their full capacity they could turn out enough goods in one year to supply the demand for two or three years. The output of our factories last year was about 40,000,000 cans.

"The duty on fine cane sugar, of $1.26 for every ... pounds, is quite a serious handicap to us when we compete for trade in the British market. In Great Britain, where our trade, although smal , is growing, we have to compete against the goods offered from all parts of the world. It is necessary, therefore, that we should be able to offer our goods at as low a rate as possible, and we find the duty on the sugar we need for preserving purposes a serious handicap.

"There is no outlet in the United States for any of our canned fruit, as the duty is entirely prohibitive. The trade with the northwest is good and is growing. There is a great demand on the part of some small towns throughout Ontario for more canning factories. The people who advocate the establishment of these factories do not appear to realize how small the demand for canned fruit is. Were the demand large enough to warrant us doing so, we could readily establish factories in 150 towns in the province that are calling for them."

FRUIT THE OTTAWA MARKET DEMANDS

G. W. HUNT, OTTAWA.

There are so many different views as to the varieties of fruit that sell to the best advantage in Ottawa it is difficult to enumerate them all. A few kinds, however, are known to always bring good prices.

In the past few years Clyde strawberries have sold remarkably well, with one or two exceptions, where the color has been very pale. The consignments of several shippers have sold at the top of the market. The William, while a good carrying berry, does not appear to have the sympathy of the buyers to any great extent. There are two or three other new varieties coming in which are not named on this market, or sold as any particular variety that sell well. If fruit growers would name their berries and all other fruit it would in the end be very beneficial to them. This applies particularly to peaches, as 90 per cent. of all the yellow flesh peaches sold on this market are sold as Crawfords, when in reality only about 20 per cent. of that class of peaches are Crawfords. The trouble is, the average householder either telephones his order or sends some person else to buy his peaches. He asks for Crawfords, and invariably the dealer sends anything that has yellow flesh like a Crawford peach.

When the peaches are canned and used the buyers find them very fine, and the next season still want Crawfords, believing they are using a Crawford peach, when it is some other variety. The naming of peaches would, of course, be detrimental to new varieties coming in, but in the end would be money in the pockets of the growers, as they would introduce every new variety permanently in that way.

In the demand for plums there does not appear to be any great difference so long as they are either blue, red or green. Buyers do not even ask for Green Gages, but when they do they are sold Reine Claudes, Washingtons, or anything else. To my mind the Reine Claude is much superior for canning purposes to the old-fashioned Green Gage, and it sells for more money.

The best selling varieties of pears are Bartletts, Clapp's Favorites, Louise Bonne, Sheldons, Buerre d'Anjou, Buerre Clairgeau. The Keiffer is a very slow seller.

FOLLOW THE CAILFORNIA STYLE OF PACKAGE.

It appears to be a difficult matter to change buyers' views on packages. My own impression is that if all the fruit were done up in the California style it would pay the grower in the course of a year or two. The only objectionable feature to the baskets is the fact they are too wide and not long enough. When they are piled eight to ten high the ends of the baskets are liable to sink into the fruit in the under tiers. If the baskets were half an inch narrower and an inch longer there would be a good firm basis for them to rest on the baskets underneath. No matter how high the baskets were piled there would be no danger of the bottom tiers being damaged in any way, providing of course they were not piled high enough to break the basket outright. The sooner the growers get down to using a six and a twelve-quart basket, with no others, the better for all parties concerned, as ten-quart baskets are only injuring the trade.

We always read The Horticulturist with interest. It is worth reading.—J. J. H. Gregory, Marblehead, Mass.

We consider The Canadian Horticulturist a very valuable paper.—(German Kali Works, 99 Nassau street, New York City.

Sec. 33. Best six white (Eaton excluded), 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 34. Best 6 pink, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 35. Best 6 yellow (Appleton and Oronhyatekha excluded), 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 36. Best 6 crimson, 1st $4, 2d $3, 3d $2, 4th $1.

Cut blooms in this class, except sections 25 and 26, to be exhibited with stems not less than 15 inches, each entry to be exhibited in one vase. Sections 25 and 26 to be exhibited in individual vases.

CUT BLOOM—ROSES.

Sec. 37. Best 10 Perle des Jardin, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 38. Best 10 The Bride, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 39. Best 10 The Bridesmaid, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 40. Best 10 The Meteor, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 41. Best 10 Mrs. Pierpont Morgan, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 42. Best 10 Golden Gate, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 43. Best 10 Ivory, 1st $4, 2d $3, 3d $2, 4th $1.

CUT BLOOM—CARNATIONS.

Sec. 50. Best 25 white, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 51. Best 25 red, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 52. Best 25 light pink, named, not darker than Scott, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 53. Best 25 dark pink, named, not lighter than Scott, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 54. Best 25 yellow, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 55. Best 25 fancy, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 56. Best 50 blooms, one variety, arranged loosely in vase, 1st $8, 2d $6, 3d $4, 4th $3.

Sec. 57. Best 50 blooms, any varieties, with any foliage, arranged loosely in vase, arrangement to count in judging, not necessarily grown by exhibitor, 1st $8, 2d $6, 3d $4, 4th $3.

Sec. 58. Best 25 new varieties, introductions 1904, 1st $5, 2d $4, 3d $3, 4th $2.

CUT BLOOM—VIOLETS.

Sec. 59. Best bunch 50 violets, double, 1st $3, 2d $2, 3d $1.

Sec. 60. Best bunch 50 violets, single, 1st $3,

BRITISH GROCERS DISCUSS THE PACKAGE QUESTION

At the quarterly meeting of the federation of the Grocers' Association, held in London, England during the early part of June, an interesting discussion took place on the subject of packing apples in boxes. The following report of the meeting is taken from The Grocer :

Mr. Dutton, on behalf of the Chester Association, moved :

"That in the opinion of those grocers in the General Purpose Committee who deal in fresh fruit, the movement in America in favor of the packing of apples in boxes of a reasonable capacity, instead of barrels, is deserving of the strongest support at the hands of all retail fruit dealers in this country, such reduced size packages having very many advantages, whilst the cumbrous barrels hitherto used have many disadvantages; and to recommend that this opinion be sent to all American fruit associations."

Mr. Dutton said he had noticed from time to time that there was such a movement in progress in America, and he had the advantage that morning of conversing with Mr. George Monro, one of the largest fruit dealers in Covent Garden, who thought it would be an excellent thing if they could send the resolution forward to the various authorities in America who were responsible on that side for the packing of goods. He had an article written by Mr. G. A. Cochrane, of Boston, on this barrel problem, in which the writer said : "I think this great scarcity of barrels is going to result in good to growers in the end. The barrel has always been a most unsuitable package to pack such delicate fruit in, as it gets an immense amount of abuse on all hands, in consequence of its being so easy to move from place to place by rolling. Another thing, its contents, for one compartment, contain too great a quantity of fruit, and in order to carry well a pressure has to be used that virtually bruises every piece of fruit it contains.

"When one looks at the intelligence shown by the Californians and the Floridians in the matter of grading and packing of their fruits, as well as the inviting packages they use, one is forced to admit the utter lack of intelligence or an indifference on the part of growers of fruit in New England and the middle states in this matter. No advancement whatever is discernible, as they continue in the same old ways of their grandfathers in adhering to the barrel, and with a little less honesty in the matter of packing their fruit. There are no fruit growers in the world who have such a low standard of grading fruit and using such an unsuitable package as the barrel to pack in as the apple growers in the middle and New England States of America; and the Canadians are not better, except in better barrels, as they generally use new ones.

"They continue to try to market one-third to one-half of their apples that should never have left their orchards, and if they could only realize this, and that they would receive from one-third to one-half more for their perfect fruit than they do now, as well as saving the cost of packages, labor, freight, cartage, and other charges on this worthless portion of their shipments—when they realize this and bring up their standards of quality, they will find their apple trees will yield them a profit to exceed anything they can raise on their farms." It

THE CANNED FRUIT INDUSTRY IN CANADA

"One of the greatest difficulties Ontario fruit growers have to contend with is the ow prices at which dates, prunes, dried apricots, pears, etc., are shipped here from the south and California, and sold on our Canadian markets. The duty on this fruit is so low that it is no obstacle to the free sale of these goods, and consequently these goods are serious competitors against our canned Ontario fruit and vegetables."

These views were expressed recently to The Horticulturist by one of the officers of the Canadian Canners' Co., Hamilton. "Another difficulty," continued Mr. Innes, "lies in the fact that our Canadian cities are so small the demand for our canned fruits is very limited. Were the 35 canning factories owned by our company to work at their full capacity they could turn out enough goods in one year to supply the demand for two or three years. The output of our factories last year was about 40,000,000 cans.

"The duty on fine cane sugar, of $1.26 for every ... pounds, is quite a serious handicap to us when we compete for trade in the British market. In Great Britain, where our trade, although smal , is growing, we have to compete against the goods offered from all parts of the world. It is necessary, therefore, that we should be able to offer our goods at as low a rate as possible, and we find the duty on the sugar we need for preserving purposes a serious handicap.

"There is no outlet in the United States for any of our canned fruit, as the duty is entirely prohibitive. The trade with the northwest is good and is growing. There is a great demand on the part of some small towns throughout Ontario for more canning factories. The people who advocate the establishment of these factories do not appear to realize how small the demand for canned fruit is. Were the demand large enough to warrant us doing so, we could readily establish factories in 150 towns in the province that are calling for them."

FRUIT THE OTTAWA MARKET DEMANDS

G. W. HUNT, OTTAWA.

sized pot, 1st $8, 2d $7, 3d $5, 4th $4.

Sec. 2. Best 1 standard, any variety or sized pot, stem not more than 3 ft, 1st $8, 2d $7, 3d $5, 4th $4.

Sec. 3. Best specimens, white, pot not to exceed 10 inches.

Sec. 4. Best 3 specimens, pink, pot not to exceed 10 inches.

Sec. 5. Best 3 specimens, yellow, pot not to exceed 10 inches.

Sec. 6. Best 12, single stem and flowered, not less than four varieties, pots not to exceed 6 inches, 1st $7, 2d $5, 3d $4, 4th $3.

Sec. 7. Best 25, single stems and flowered, not less than eight varieties, pot not to exceed 6 inches, 1st $12, 2d $10, 3d $8, 4th $6.

Sec. 8. Best 3 specimens, Pompon Anemone or single flowering, pots not to exceed 8 inches, 1st $5, 2d $4, 3d $3.

PLANTS—MISCELLANEOUS.

Sec. 9. Best group of plants, arranged for effect, consisting of 'mums, palms, ferns and selaginellas, space not more than 90 sq. ft., 1st $30, 2d $25, 3d $20, 4th $15.

Sec. 10. Best group of foliage plants, arranged for effect, in which a few 'mums may be introduced, space not to exceed 90 sq. ft., 1st $20, 2d $15, 3d $12, 4th $10.

Sec. 11. Best 1 specimen palm, 1st $10, 2d $8, 3d $6.

Sec. 12. Best 12 specimen palms, not less than four varieties, pot not to exceed 8 inches, 1st $10, 2d $8, 3d $6.

Sec. 13. Best 50 ferns, not less than 8 varieties, not larger than 3-inch pots, 1st $5, 2d $4, 3d $3, 4th $2.

Sec. 14. Best 25 ferns, not less than 6 varieties, pots not to exceed 3 inches, 1st $3, 2d $2, 3d $1.50, 4th $1.

Sec. 16. Best 1 specimen fern, 1st $6, 2d $4, 3d $3.

Sec. 17. Best display of orchids, in which Nepenthes and any green foliage may be used, 1st $25, 2d $20, 3d $15, 4th $10.

Sec. 18. Best 3 orchids in flower, 1st $6, 2d $4, 3d $2.

Sec. 19. Best 1 orchid in flower, 1st $3, 2d $2, 3d $1.

Sec. 20. Best 6 cyclamen in pots, not to exceed 8 inches, 1st $5, 2d $4, 3d $3.

Sec. 21. Best 12 primulas in pots, not to exceed 8 inches, 1st $5, 2d $4, 3d $3.

Sec. 22. Best 6 pots of callas in bloom, pots not to exceed 10 inches, 1st $5, 2d $4, 3d $3.

Sec. 23. Best 6 begonias in bloom, pots not to exceed 8 inches, 1st $5, 2d $4, 3d $3.

Sec. 24. Best 6 flowering plants, distinct varieties and distinct from other entries, pots not to exceed 10 inches, 1st $10, 2d $8, 3d $6.

CLASS II.

CUT BLOOM—CHRYSANTHEMUMS.

Sec. 25. Best 25 distinct varieties, 1st $10, 2d $8, 3d $6, 4th $4.

Sec. 26. Best 12 distinct varieties. 1st $6, 2d $4, 3d $3, 4th $2.

Sec. 27. Best 25 any varieties, 1st $10, 2d $8, 3d $6, 4th $4.

Sec. 28. Best 12 one variety, 1st $6, 2d $4, 3d $3, 4th $2.

Sec. 29. Best 6 new varieties, 1st $5, 2d $4, 3d $3, 4th $2.

Sec. 30. Best 6 T. Eaton, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 31. Best 6 Col. Appleton, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 32. Best 6 Dr. Oronhyatekha, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 33. Best six white (Eaton excluded), 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 34. Best 6 pink, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 35. Best 6 yellow (Appleton and Oronhyatekha excluded), 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 36. Best 6 crimson, 1st $4, 2d $3, 3d $2, 4th $1.

Cut blooms in this class, except sections 25 and 26, to be exhibited with stems not less than 15 inches, each entry to be exhibited in one vase. Sections 25 and 26 to be exhibited in individual vases.

CUT BLOOM—ROSES.

Sec. 37. Best 10 Perle des Jardin, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 38. Best 10 The Bride, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 39. Best 10 The Bridesmaid, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 40. Best 10 The Meteor, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 41. Best 10 Mrs. Pierpont Morgan, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 42. Best 10 Golden Gate, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 43. Best 10 Ivory, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 44. Best 10 Canadian Queen, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 45. Best 10 any other variety, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 46. Best 10 American Beauty, 1st $8, 2d $6, 3d $4, 4th $2.

Sec. 47. Best 10 new varieties, introductions 1904, 1st $6, 2d $4, 3d $3, 4th $2.

Sec. 48. Best vase of 50 roses, arrangement to count in judging, not necessarily grown by exhibitor, American Beauty excluded, 1st $15, 2d $12, 3d $10, 4th $8.

Sec. 49. Best vase 25 American Beauties, 1st $15, 2d $12, 3d $10, 4th $8.

CUT BLOOM—CARNATIONS.

Sec. 50. Best 25 white, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 51. Best 25 red, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 52. Best 25 light pink, named, not darker than Scott, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 53. Best 25 dark pink, named, not lighter than Scott, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 54. Best 25 yellow, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 55. Best 25 fancy, named, 1st $4, 2d $3, 3d $2, 4th $1.

Sec. 56. Best 50 blooms, one variety, arranged loosely in vase, 1st $8, 2d $6, 3d $4, 4th $3.

Sec. 57. Best 50 blooms, any varieties, with any foliage, arranged loosely in vase, arrangement to count in judging, not necessarily grown by exhibitor, 1st $8, 2d $6, 3d $4, 4th $3.

Sec. 58. Best 25 new varieties, introductions 1904, 1st $5, 2d $4, 3d $3, 4th $2.

CUT BLOOM—VIOLETS.

Sec. 59. Best bunch 50 violets, double, 1st $3, 2d $2, 3d $1.

Sec. 60. Best bunch 50 violets, single, 1st $3, 2d $2, 3d $1.

FLORAL DESIGNS.

Sec. 61. Best hand boquet, any flowers, 1st $10, 2d $8, 3d $6, 4th $4.

Sec. 62. Best funeral design, standing anchor, any flowers, anchor frame not to exceed 24 inches, 1st $15, 2d $12, 3d $10, 4th $8.

Sec. 63. Best presentation basket of 'mums, 1st $10, 2d $8, 3d $6, 4th $4.

Sec. 64. Best presentation basket of any flowers, basket not to exceed 14 inches, 1st $10, 2d $8, 3d $6, 4th $4.

Sec. 65. Best flat basket of 'mums for table decoration, not to exceed 20 inches, 1st $10, 2d $8, 3d $6, 4th $4.

An Interesting Move for Supplies.

The St. Catharines Cold Storage and Forwarding Company has recently purchased 250,000 baskets, with an option on 200,000 more, getting 10 per cent. discount from the regular price. Two carloads of apple and pear boxes have also been purchased at very good prices, enabling members to procure these supplies at very reasonable rates. New members are being received continually, about five a week being the average for some time past, at $50 each, thus bringing quite a goodly sum into the society's treasury. The company has a good supply of wooden berry boxes and crates on hand at the storage. Baskets, fasteners, barrels and other supplies will be secured at liberal discounts for the members who hold five shares of stock.

We arranged our first exhibition of fruit and flowers for June 28. This was the first event of the kind in the history of the city, and no pains were spared by the directors of the society to make it a great success.—(S. Richardson, Sec. St. Catharines Hort'l Soc.

A New President.—The members of the Kingston Horticultural Society have chosen a new president, the new officer being Col. R. E. Kent, who was unanimously elected to fill the vacancy made by the former president leaving the city. Mr. Kent is sure to do well for the society at Kingston, as he is much interested in horticulture and has been a hard and faithful worker in the interests of former shows. He has one of the finest gardens in Kingston. A meeting will be held shortly to determine the advisability and probability of the society holding a show next fall.

Broken Apple Boxes.—Mr. John Brown, inspector of the Department of Agriculture at Glasgow, reports to the Fruit Division, Ottawa, that a shipment of over 1,200 boxes of Canadian Baldwins and Greenings recently landed in that city with a large number of the boxes broken. This condition of affairs seemed to be due to the fact that the boxes were made with only a straight dovetail, simply matched, as it were. The advisability of having the boxes made with the regular fan-shaped dovetail or else strongly nailed is therefore apparent.

HORTICULTURAL SOCIETIES ARE FALLING INTO LINE

The suggestion made in the June issue of The Horticulturist that a provincial horticultural association might be formed at the time of the big flower, fruit and honey show, to be held in Toronto next November, is being generally endorsed. The need for better organization on the part of horticultural societies appears to be recognized. The following societies have been heard from since The Horticulturist appeared in June :

WHAT THE SOCIETIES SAY.

Our president, as well as our secretary, have been giving some consideration to this question, and also to pages 268 and 269 of The Canadian Horticulturist for June, the perusal of which so favorably impressed us both in regard to the importance of the proposed new association that I am advised to write you stating our society will appoint one or more delegates to the big fruit, flower and honey show to be held in Toronto next November. That the organization proposed will be successful in every sense we feel convinced. You may count on the cooperation of the Kincardine Hort. Society. —(Joseph Barker, Sec.

I think the idea of sending delegates to the fruit, flower and honey show to be held in Toronto in November next, a capital one. There is no reason why an organization such as you suggest, viz., for horticultural societies, should not only prove a success but also of lasting benefit to all interested in horticulture. No doubt whatever but our society will be represented at such a meeting.—(C. J. Foy, Sec. Perth Hort'l Soc.

I think it would be a good idea to have such a meeting in Toronto next November.—(C. W. Schierholtz, Sec. Elmira Hort'l Soc.

The president of the Port Dover horticultural society desires me to say that he heartily concurs in the proposal to hold a provincial meeting of delegates from horticultural societies in Toronto next November. The combined show it is purposed to hold is a good idea, and should be largely patronized. There is no doubt but that this society will be glad to send delegates to such a meeting. Personally I shall be glad to do what I can to promote the success of the same. Success to The Horticulturist.—(S. L. Butler, Sec.-Treas.

I am instructed by the directors to say that they heartily approve of the idea of forming a provincial association of horticultural societies. Delegates will be sent when the time arrives. I wish the movement every success, and trust every horticultural society will see the matter in its true light.—(S. Richardson, Sec. St. Catharines Hort'l Soc.

We believe that a provincial horticultural association could be so managed as to greatly improve the work and the results of our local societies. We heartily approve of the proposal.—(S. W. Howard, Sec. Hagersville Hort'l Soc.

I have brought this matter to the attention of our horticultural society, and they heartily cooperate with the sentiment of your communication. I will report later to you who the delegates may be.—(T. T. Thrasher, Sec. Stirling Hort'l Soc.

I consider the proposition to form a provincial horticultural association a move in the right direction. We may not appoint delegates, but I hope to be present for one day at least.—(W. Sanderson, Sec. Stratford Hort'l Soc.

Tree Protectors

During June The Horticulturist wrote to the fruit experiment stations of the province which are using the Arndt tree protectors, asking them how the protector is working. Replies received from several of the stations are to the effect that it is still too early in the season to announce what results will be derived from these protectors. At one or two of the stations the protectors have not yet been put on the trees.

Mr. Murray Pettit, of Winona, writes as follows: "I think the Arndt tree protector will be valuable where the canker worm is troublesome. The female crawls up the trunk of the tree, and as there are two forms of them, one of which deposits its eggs in the fall and the other in the spring, it will require a full year to test the protectors."

Mr. Nicholas Young, of Richard's Landing, writes that he believes the Arndt tree protector just fills the bill as far as preventing crawling insects from going up the tree is concerned. "It is," he writes, "about perfect, being easily applied. It would have saved me many an hour's work five years ago, when I had an invasion of forest tent caterpillars."

Ottawa's Successful Rose Show

Roses ran riot at the June exhibition of the Ottawa Horticultural Society on the 21st ult. A splendid showing of peonies was also made, while strawberries were well to the front. An interesting and instrustive talk on Roses was given by Mr. W. G. Black, a full report of which will be published later in The Horticulturist.

Out of 50 odd varieties of roses tested by Mr. Black, a group of hybrid perpetuals for some years past have supplanted all others, they being hardy and having a beautiful bloom. The principal exhibitors of herbaceous perennial blooms were W. H. Snelling, J. Thorne, R. B. Whyte ; of roses, W. G. Black, J. Rowley, G. A. White and Mrs. John Laing. Peonies were shown by Messrs. F. Oster, MacGrady, Snelling, H. P. Carstesen, T. Judd, S. Short, R. B. Whyte and Miss V. Keyes.

BETTER TRANSPORTATION OF FRUIT ASKED FOR

A strong case was made out by the representatives of the fruit interests of Ontario at the sessions of the Railway Commission, which met in Toronto during the week beginning June 20. The commission, as is generally known, was recently appointed by the Dominion Government for the purpose of hearing and determining complaints in regard to the service rendered by the railway companies. For years there has been general complaint on the part of fruit growers in regard to the treatment they have received at the hands of the railways. It has been felt that the development of the fruit industry has been seriously retarded in consequence.

The fruit interests represented included the Ontario Fruit Growers' Association, the Niagara Fruit Growers' Association, and the International Apple Shippers' Association. The principal witnesses were Mr. W. H. Bunting, of St. Catharines, the president of the Ontario Fruit Growers' Association; Mr. E. D. Smith, M. P., of Winona; Mr. H. W. Dawson, the well known commission dealer, of Toronto, and ex-Mayor R. J. Graham, of Belleville, who was the representative of the Apple Shippers' Association. The railways were represented in part by Mr. G. M. Bosworth, 4th vice-president of the Canadian Pacific Railway; Mr. John Pullen, general freight agent of the Grand Trunk Railway; Mr. B. B. Mitchell, of Detroit, general freight agent and traffic manager of the Michigan Central Railway; A. Patriarche, general traffic manager of the Pere Marquet system; Mr. Hinton, of the Canadian Atlantic Railway, and several others.

The case for the several farming organizations was introduced by Mr. W. D. Gregory, barrister, of Toronto, who quoted statistics which indicated that during the past 26 years increased from $29,000,000 to $83,666,000, while the total earnings of Canadian railways have the working expenses have only increased from $22,390,000 to $57,343,000. This expansion of business and increase in profits, he claimed, may be fairly advanced as a justification for the demand for the reduction in rates and a better service. Reference was made to the fact that Canadian roads gave lower rates on American traffic carried through Ontario than they do on Ontario traffic carried over the same lines.

MR. BUNTING'S EVIDENCE.

Some strong evidence was given by Mr. Bunting, who stated that the fruit growers have not taken the stand they have through any spirit of hostility to the railways. The complaints of fruit growers are, he said, divided into three classes, "Equipment," "Despatch," and "Rates."

Owing to the McKinley tariff having shut Canadian fruit out of the American markets, Mr. Bunting showed how dependent Ontario fruit growers are on the services they receive from the railroads in the transportation of their fruit to their distant markets. The shutting off of this market and the great increase in production has caused prices for fruit to fall greatly during the last 10 or 12 years. It is therefore imperative that transportation charges shall not be excessive. Cases were quoted which showed how little margin fruit growers frequently have for their products. On 2,502 baskets of mixed fruits, shipped by express from the St. Catharines district, to points between Montreal and Toronto, the gross returns were $839.27, the express charges were $335.00, and the commission for selling $83.90. The gross returns from the fruit were about equally divided between the grower, the express company, and the commission man. Many cases, he claimed, could be given where growers actually realized nothing for their product.

In reply to the claim that in only about one year out of two is there a good fruit crop, figures were quoted which showed a steady and marked increase in the shipments from St. Catharines. These shipments, which in 1898 only amounted to 256 tons of tender fruits, had increased in 1903 to 2,465 tons. It is natural, he claimed, to believe that the general increase throughout the province has been in about the same proportion. The express charges are so high it is impossible to send much in that way. Although speed is essential in the shipment of fruit, the railways refuse to accept any responsibility for delays unless negligence can be proved, which is generally impossible. Owing to delays on the road fruit frequently misses the market it is intended for and consequently has to be sold at a great sacrifice.

Mr. Bunting asked that the classification of mixed fruit in baskets in less than car loads be reduced from first to third class, and in car lots from third to fifth class. If this is granted, instead of it costing growers 33 cents per hundred pounds to ship to Montreal in car lots it will only cost 22 cents. A higher rate is charged for the shipment of pears than for apples. In the case of mixed shipments in the same car the high rate is charged for the entire shipment. Mr. Bunting asked that pears be charged at the same rate as apples.

A material reduction in the cost of icing cars was requested. It was stated that fruit growers will be satisfied if they are simply charged the actual expense of icing each car instead of a flat rate of $16 per car as at present. On the conclusion of his evidence Mr. Bunting was highly complimented by Commissioners Blair and Bernier for the able manner in which he had presented his case.

DELAYS IN SHIPMENT.

Evidence along a slightly different line was given by Mr. E. D. Smith, M. P., of Winona, who asked for quicker transportation, better equipment, and the ability to get cars when they are wanted.

Last fall Mr. Smith said he had to wait three weeks at Port Perry for cars for apples. Thousands of barrels were frozen because of the lack of cars. In the moving of less than car lots of fruit there is almost no system at all. A number of cases of slow delivery were mentioned,

including a shipment from Winona to Woodstock, a distance of 60 miles, which was on the road six days; to Port Perry, a distance of 100 miles, which took 13 days.

Fully 25 per cent of Mr. Smith's shipments were on a par with those mentioned. This results in frequent and heavy loss. He asked that if the railways cannot supply cars when called for they should at least state the precise time, two or three days later perhaps, when they could furnish them. Shippers are charged demurrage when they delay cars over a short time, and he thought this rule should work both ways.

SOME INTERESTING INFORMATION.

Mr. R. J. Graham, of Belleville, disputed the statement of the railroads that the apple business is confined to two months of the year. Last year between April and August almost 150,000 apples were shipped, the entire export totalling over 1,000,000 barrels. He asked that cars be shipped within at least one week of the order and that the fruit shall be delivered at its destination in a reasonably good condition. A statement from the Dominion steamship line was quoted which showed that none of their ships from November 28th to March 6th carried freight which was not receipted for as "partly frozen," "frosted" or "chilled," owing to the lack of proper equipment. Apple shippers, he claimed, must have proper equipment or they will be obliged to go out of business.

Complaints were also made of the character of the agents' receipts, which are given at the owner's risk. Shippers are willing to accept the risk if they can get proper cars, but if the equipment is inferior the companies ought to bear part of the risk. Shippers also desire to receive receipts for the exact count, and not "owner's count, more or less."

LITTLE ATTENTION PAID TO CLAIMS.

Troubles of the fruit growers in regard to the failure of the railways to furnish satisfactory information concerning claims were described by Mr. H. W. Dawson. These claims are often thrown back to the shippers by the railroads with a disclaimer of all responsibility. He presented over 1,000 claims, about which no satisfaction could be secured.

Mr. Dawson favored a flat rate on fruit shipments, no matter what the value of the shipment. It should not make any difference to the railways whether a car load of peaches is worth $1,000 or $400. He had examined his books and found that the claims which were settled by the railways had averaged over a year in settlement. The rate on apples is 150 per cent greater, considering weight, than that on flour, which is given much more protection en route and in transhipping.

WHAT THE RAILROADS SAID.

In their replies the representatives of the railroads admitted the correctness of most of the charges that had been made, but claimed that the railroads are doing their best to grapple with the situation.

Mr. Pullen admitted that there is a deficiency of cars, both in number and quality, in spite of the fact that the company has added greatly to its equipment of late years. He could not, however, give any particulars as to the additions that have been made. He claimed that demands for cars for small fruit have been fairly well met. One reason for damage to fruit is that growers will not organize and erect warehouses for the proper storage of their fruit. He read a letter from Mr. J. M. Riddell, local freight agent at Montreal, to the effect that 65 per cent. of the fruit cars reaching Montreal last summer up to the close of navigation were in refrigerator cars, which went through in 36 hours.

Mr. Pullen claimed that much of the fruit shipped is over ripe, and that one cause of low prices is the fact that shippers flood the market. The modern air brake causes cars to stop suddenly, which frequently results in the breakage of frail packages. The chief cause of delay in the shipment of fruit is the numerous transfers at junction points. Mr. Pullen would not admit that lack of ventilated cars is responsible for much of the loss complained of. The great cause of delay in train service is due to facilities at stations not having kept pace with the growth of traffic. The railroads are endeavoring to improve these.

OBJECTED TO THE PROPOSED CHANGE.

Mr. Bosworth objected strongly to the request of the fruit growers to have the classification of small fruits reduced. Montreal, he claimed, is a dumping ground for fruit, and it is reasonable to expect small returns there. The reduction asked for would put small fruits in the same class as sugar, soap, iron, nails, etc., and as the latter are not subject to injury by delays, the railroads, if forced to handle fruit on the same basis would naturally give these other goods the preference. Fruit growers, he said, want more and better cars, but ask that their fruit shall be carried at a lower rate, although to furnish the improved cars will require money. This he did not consider fair. Were the change made in the classification it would spoil the existing harmony, as the canned goods man, for example, would have a good case to come before the commission and also ask for a reduction. If the fruit growers find the rates will not leave a fair margin of profit the companies are willing to consider the cases on their merits. Mr. Bosworth asked the commission not to make a change in classification, which will effect business from Halifax to Vancouver.

Further evidence will be taken by the Commission.

There are a large number of horticultural papers published in the United States, but only one in Canada, and that is The Canadian Horticulturist. Help us make it a credit to Canada by recommending it to your friends and patronizing our advertisers.

Average Yield of Apples Probable

Prospects for a liberal yield of apples next fall throughout the province continue bright. In many counties a full crop of most of the leading varieties is expected, while there are very few counties in which a medium yield is not anticipated. The Lake Huron and Georgian bay district promise to give almost a full crop of the early varieties, conditions in Grey and Simcoe counties being particularly favorable. In Bruce most of the correspondents look for at least a medium crop. Fall varieties do not appear to be doing quite as well. In Lambton, Gravensteins, Fameuse and Bellfleurs will be about a medium yield. Alexander and Colvert promise better. Gravenstein, Fameuse and Alexander in Bruce county will also be only about a medium crop, with brighter indications for Colvert and Bellfleurs. In Grey and Simcoe counties there will be a medium to full crop of all fall varieties. All these counties will probably produce a medium to full crop of the winter varieties, such as Baldwins, Greenings, Spys, etc.

THE LAKE ONTARIO DISTRICT.

Counties bordering Lake Ontario promise a medium yield of the early varieties, a medium to full yield of fall apples, and a light to medium yield of winter sorts. Only a light production of the winter varieties is anticipated in Lennox, Hastings and Leeds counties, most of the others reporting that there will be at least a medium crop. In Northumberland many of the fall varieties appear to have been more or less injured.

THE SOUTHERN SECTION.

In the Niagara district and along the shore of Lake Erie a medium to full crop of early apples is expected. Kent and Essex counties do not send in as favorable reports. Such fall apples as are grown will probably be a good yield in the last named counties, Essex and Kent running light. Winter apples promise better in all these counties. The yield of apples throughout the province as a whole seems likely to be almost if not quite up to the average.

Cherry Trees Injured

Cherry trees have been badly injured in almost all the northern counties, particularly in the Georgian Bay district and along the shore of Lake Ontario. Most of the growers reporting to The Horticulturist from these sections believe the crop is likely to prove almost a total failure, although some expect to have a light to medium yield.

In the southern portion of the province prospects are more favorable. In Wentworth county a medium yield is probable, although in some sections there has been heavy loss. On the other hand, quite a few reports from this county estimate there will be a full crop. In the Niagara and Lake Erie counties correspondents expect a light to medium yield.

A report from Wentworth county states that the black aphis has been more destructive this year than ever before. Sour cherries have come through the winter in much better condition all through the province than the sweet.

Light Yield of Plums Probable

In the June issue of The Horticulturist it was announced that the plum crop this year would probably be a light one. A large number of reports received since indicate that this estimate was a correct one. In many sections of the province the crop is reported to be an utter failure, while in others correspondents do not expect anything more than a light yield. Very few of the sections heard from look for much more than a medium crop.

In the Georgian Bay district Simcoe county will probably have a light to medium crop. Reports received from Grey and Bruce counties indicate that the yield will range from a failure to a light one. Along Lake Ontario and in eastern Ontario the severe winter has killed and badly damaged a large proportion of the trees. Some growers are taking their trees up, having concluded that the crop is not a sure enough one for their district. The majority of the reports received from Ontario and York counties indicate that plums will be an almost general failure, while in Halton, Durham, Hastings and Northumberland counties a light to medium crop is expected.

In the southern portion of the province reports are more favorable. Wentworth county will have a medium to light crop, while Welland and Lincoln counties will not yield 50 to 70 per cent of a full crop. Brant county will produce a moderate crop, while Norfolk and Lambton counties will range low. In Essex and Kent counties a moderate yield is anticipated.

A Small Crop of Strawberries

Reports received as late as June 23 show that the yield of strawberries throughout the province as a whole will be a rather light one. The northern counties, in some sections, promise almost a full crop, but in some of the larger producing districts the crop will be very small. Along Lake Erie and in the Niagara peninsula correspondents expect a light to medium yield. Little more than a medium crop is looked for in eastern Ontario, or in the counties bordering Lake Ontario. Prospects are brighter in the Georgian Bay and Lake Huron sections, where a full production is generally anticipated.

Summing up the reports received from the correspondents in the different counties, the yield will be about as follows: Wentworth medium; Welland and Lincoln, light; Brant, medium; Norfolk, light; Lambton, light to medium; Elgin and Kent, light, and Essex a full yield. Along Lake Ontario light crops are

expected in Lennox and Northumberland counties, and medium ones in Durham, Ontario, York and Halton. Simcoe will have a medium to full crop.

A large yield is expected in Grey county, nearly all the correspondents out of a large number heard from estimating a full yield. Prospects are almost equally as bright in Bruce county. One grower writes that the fruit is of good quality, the first berries having been picked in this section about the middle of the month.

Pear Orchards Promise Moderate Yield

Prospects for a fair crop of both early and late pears are promising. While many trees were badly injured by the severe weather last winter, orchards as a whole appear to be in pretty good condition. In the Niagara and Lake Erie sections a moderate crop of the early varieties is anticipated in all the counties. Late varieties have not done quite as well, although conditions indicate that there will be a pretty full yield.

In Lincoln Duchess and Anjou pears have suffered considerably; Bosc and Keiffer promise better. Reports from Welland indicate all varieties of late pears will be a light yield. This is also the case in Brant county, with the exception of the Duchess variety, which it is thought will be a medium crop. Essex and Kent county orchards will bear moderately. A very good yield of the late varieties is looked for in Wentworth county, and almost a full crop of early pears. Along Lake Ontario both early and late varieties will be a light crop, except in Halton, which will likely produce a moderate crop.

Peach Crop Will Be Light

The reports received by The Horticulturist during the latter part of June bear out the correctness of the announcement made last month that the peach crop will be light, especially in Brant, Essex and Kent counties. In Wentworth, Welland and Lincoln counties, and one or two of the light producing counties, correspondents estimate there will be at least a fair to medium crop. Only one correspondent in Essex county places the peach crop as a total failure. Others indicate that the prospects are for a light crop. One grower writes there will be a medium yield where trees were not winter killed.

In Kent county growers expect a light crop. All the reports from Brant county estimate the crop as a total failure. Welland county growers look for light to medium returns, while the Lincoln peach men hope to have a fair to medium yield. In Wentworth county prospects appear to be the brightest of any section, as a large number of the growers expect at least medium returns. It is quite evident that the severe winter has played havoc with the peach orchards as a whole, and that in spite of the fact that there are few insect pests reported to speak of, the crop will be a light one.

The European Fruit Crop

The Fruit Division, Ottawa, has received from Champagne, Freres Limited, the largest fruit dealers in Paris, the following report: "From special information that we have taken all over Europe, it appears there will be very heavy crops of all classes of pears and apples in France, Germany, Bohemia, Austria, Switzerland, etc., so that they will no doubt injure to a great extent the sale of your Canadian fruit."

Garcia, Jacobs & Co., London, say that the prospects of the English fruit crops are not so good as at first reported. The apple crop is doubtful at present, cold winds affecting the fruit. The best late pears are said to be a failure, with common fruit fairly good. Early pears are falling rapidly and promise only a light crop. The plum crop will not be as good as expected; some districts will have a fair yield, others an entire failure.

MANITOBA WANTS FRUIT.

Inspector Philp writes the Fruit Division that in Winnipeg the coming demand for first-class fruit, especially apples, will be the greatest in the history of the trade. He, however, repeats previous warnings that inferior fruit is not wanted at any price; only the best will give remunerative returns.

Something About Apples

"For export, the Baldwin apple," said William Rickard, M. L. A., of Newcastle, Ont., to The Horticulturist recently, "takes first place, everything considered, mainly on account of its first-class carrying qualities and its good color. For home consumption and the United States and western markets, the Spy easily comes first as a winter apple, due to its real and acknowledged merit. In flavor it is the best dessert winter apple we grow.

"The King realizes the best prices of any apple shipped to the old country, but it is not a very profitable apple on account of its poor bearing qualities. The McIntosh Red is not much grown in my section, but it stands high as a shipping apple. The Greening is growing in popularity, although at one time no person wanted it. To-day it stands among the first. It always does well on the Glasgow market, being almost if not quite as good a seller as the Baldwin. It is also the best cooking winter apple we grow in Ontario.

"If I could grow the Snow apple free from scab and well colored, I would want no other variety. They bring good money and will continue to do so for a long time. The trouble is that in my section it is practically impossible to grow them free from scab."

I have about 1,000 apple trees, of which 700 are in bearing. No trees have proved so profitable with me as the Spys. I think the country is selling too many Ben Davis.—(J. W. Jones, Brighton, Ont.

Officers Were Elected

Preliminary arrangements for the big fruit, flower and honey show, to be held in Toronto next November, were made at a meeting of the joint committee, appointed by the different organizations interested in the show, which took place Wednesday evening, June 8. Those present included Messrs. Edward Tyrrell, J. McP. Ross, Chas. Chambers and W. G. Rook, of the Toronto Horticultural Society; J. H. Dunlop, T. Manton and W. H. Foord, of the Gardeners' and Florists' Association; Bernard Saunders, of the Electoral District Society; P. W. Hodgetts, representing the Fruit Growers' Association, and H. B. Cowan, representing the Ontario Department of Agriculture.

The first business included the election of officers, which resulted in the appointment of Mr. R. J. Score as president, J. McP. Ross as vice-president; H. B. Cowan, secretary, and P. W. Hodgetts, treasurer. On motion of Mr. Rook, seconded by Mr. Saunders, Mr. George Mills was appointed to act as the superintendent of the floral exhibition at the time of the show. It was decided it would be necessary to have sub-committees. Messrs. Charles Chambers, Franklind, Bunting and Dunlop were appointed to act as a finance committee, and Messrs. Rook, Manton, Hodgetts and Simmers as an advertising and printing committee. On motion of Mr. Manton, seconded by Mr. Dunlop, it was decided that the chairmen of the various sub-committees must be members of the general committee, but that the sub-committees would have power to add to their numbers. A prize list for the floral show was submitted and adopted on motion of Mr. Manton, seconded by Mr. Foord. This prize list is published in this issue. A motion by Mr. Manton, seconded by Mr. Rook, was carried, instructing the secretary to engage the two Church street rinks for the purpose of the exhibition on the terms agreed upon between the representatives of the rink and the representatives of the different associations.

Holding Garden Competitions

There has been a great increase in the number of entries this year in the garden and lawn competitions held in the city of London.

There are eight classes, including one for the best front lawn and surroundings, for which $57 are offered. Class 2 is for the best back garden, $57 in prizes being offered for this class also. The third class is for the best new premises, showing the greatest improvement, where the house was not occupied before October 1. Other classes include best window boxes in business premises and best window boxes in private houses. Prizes will also be given to residents of a block which as a whole presents the best appearance during the season.

In a school competition $120 in plants, bulbs and seeds will be divided in twelve prizes.

THE NEW POWER

SPRAMOTOR

Can be used with from 2 to 30 nozzles operating at one time; no straining of mixtures required; fills its own tank in fifteen minutes; all hand work done away with; 250 apple trees can be sprayed in an hour; endorsed and used by the Dominion Government for the last two years, had Two-Speed Gear; Safety; High Pressure; Duplex Detachable Valves; Auto-Compensating Plungers; Single and Double Acting; can be worked by hand if required and is the most complete apparatus in the world.

Full particulars free.

SPRAMOTOR CO.

68-70 King St. London, Can. 107-109 Erie St., Buffalo, N. Y.

TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

Our Monthly Weather Report

REPORT OF THE WEATHER TO JUNE 20.

The mean temperature of the first ten days of June was below average, excepting in Algoma and in districts lying near the Georgian Bay and Lake Huron, where there was a mean positive departure of 1.5 to 2.5 degrees. The negative departures, which were the more widespread, prevailed from the southwestern counties northward and eastward along Lakes Erie and Ontario to the Ottawa and St. Lawrence valleys, being most pronounced (two or three degrees) between Ottawa and Montreal and near Toronto. During the second ten days Algoma alone showed a positive departure, all the remainder of the province being below average by amounts ranging from about two degrees near Lake Ontario to half a degree in the Ottawa valley and near the Georgian Bay.

While very few June reports have been received to date, it is probably approximately true that the rainfall of the 20 days has been excessive in nearly all parts of the province, excepting the Ottawa valley, where it was just average, and in most counties of southwestern Ontario and immediately to the east of Lake Huron, where there has been a considerable deficiency.—(R. F. Stupart, Director Dominion Meteorological Service.

Pure Culture

MUSHROOM SPAWN

Has proven to be most productive. Made according to methods recommended by the U. S. Dept. of Agriculture. Send for instructive circular on "Mushroom Spawns."

PURE CULTURE SPAWN CO.

Box— St. Louis, Mo., U. S. A.

WINDSOR SALT is the best Salt for Table and Dairy—No adulteration—Never cakes.

GINSENG Fortunes in this plant. Easily grown. Roots and seeds for sale. Room in your garden. Plant in Fall. Booklet and Magazine 4c.

OZARK GINSENG CO., 409 Main Street, JOPLIN, MO.

A GIFT OF $10.00

Will be given the reader who buys goods to the greatest value on or before August 15th, 1904, from the advertisers in this month's issue of The Horticulturist.

Readers must notify advertisers that they saw their advertisements in this paper.

When applying for the $10 bonus they must inform this office of the name or names of the advertisers they dealt with and the value of the goods they purchased from each. Application for this bonus must be made to this office on or before **August 18th, 1904.**

Address,

ADVERTISING MANAGER,

The Canadian Horticulturist, Toronto, Ont.

SICHE GAS, LIGHT, HEAT, POWER.

SAFE AND CHEAP

A light of fascinating brilliancy, pure, white, steady and diffusive.

Colors matched as easily as by daylight.

Much safer, cleaner and healthier than coal gas, gasoline, coal oil or acetylene.

No vitiation of the atmosphere, no smell in burning, no danger, no poisonous fumes.

The light par excellence for camps, tents, cottages, dwellings, hotels, stores, factories, churches, etc.

Its rays have the same spectrum as daylight; it is therefore superior to electricity.

Siche Gas saves work; it does not destroy plants or blacken pictures, ceilings, or silverware.

There is no danger of asphyxiation as with coal gas, or explosion and fire, as with coal gas, gasoline, coal oil and acetylene.

The Siche Gas System is extremely simple; there is no machinery to get out of order.

The apparatus requires no skilled labor, and needs very little attention.

It is absolutely safe in unskilled hands as dangerous manipulation of the parts is impossible.

First and subsequent cost, extremely moderate; durability, remarkable—Economy, Efficiency, Safety, Simplicity, Satisfaction.

WRITE

SICHE, 81 YORK STREET, TORONTO,

FOR PRICES.

TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

AUGUST

BUTTERCUP nodded and said "good-bye!"
Clover and daisy went off together,
But the fragrant water lilies lie
Yet moored in the golden August weather.
The swallows chatter about their flight,
The cricket chirps like a rare good fellow,
The asters twinkle in clusters bright,
While the corn grows ripe, and the apples mellow.

CELIA THAXTER.

Shipping Fruit at the Helderleigh Fruit Farms and Nurseries.

So extensive is the business transacted by the Helderleigh Fruit Farms and Nurseries at Winona, the Dominion Express Company keeps an agent at that point to bill the fruit. The total charges made by this company alone aggregate nearly $23,000 Extensive shipments were also made by the Canadian Express Company, and by freight over the Grand Trunk and Canadian Pacific Railways. The illustration shows fruit being delivered at the combined fruit house, cold storage plant and shipping station. It is a brick structure, capable of holding 50 to 60 tons of fruit. A descriprion of this big fruit farm is given in this issue.

The Canadian Horticulturist

AUGUST, 1904

VOLUME XXVII NUMBER 8

THE WESTERN FRUIT MARKET

PROF. J. B. REYNOLDS, ONT. AGRI. COLLEGE, GUELPH.

IT is highly desirable to establish a market for southern Ontario fruit in the north and west. From North Bay northward and westward, through the newly-opened and opening districts of northern Ontario, through Manitoba, and on to the western territories, is a great expanse of country that is being rapidly settled, that in a few years will be populated by millions where now are thousands, and that in all probability will never produce in sufficient quantities the standard fruits of southern Ontario. There the market is, and, so far as it is supplied at present, it is principally supplied by western fruit from British Columbia, Oregon and Washington Territory.

To the opening of that market for Ontario fruit there are two main obstacles; the character of our fruit, and transportation. The summer fruits produced on the western coast differ materially in their shipping qualities from the fruits of Ontario. The extreme dryness of the summer climate on the Pacific coast produces fruit much less juicy than are the fruits of Ontario. Then, western fruits can always be picked in dry weather and packed and shipped dry. Ontario fruits, on the contrary, being on account of the great humidity of our climate more juicy internally and more liable to be moist externally, are much more subject to injury in shipment and to various diseases. This is, of course, more especially true of the earlier and softer fruits. The writer saw a carload of California fruit unloaded and sold at Ottawa on July 6. There were peaches, plums, cherries and tomatoes. The fruit had come by freight in an Armour refrigerator car, and from the time of picking to that of unloading 11 days had elapsed. All the fruit that could be seen, and presumably the whole carload, was perfect in condition, without bruise or decay of any kind being visible.

This highly gratifying result is due in large part to the dryness of the fruit externally and internally. But intelligent and skilful picking and packing had done their share. It was evident that the fruit had been picked at exactly the right stage of ripeness, for upon arrival it was neither green nor soft nor over ripe; each box of fruit was of uniform ripeness, and therefore must have been selected; all the fruit was carefully packed in the famous California box packages, and the peaches were individually wrapped in paper.

The experience of California fruit growers and shippers has demonstrated the necessity for all this care in selecting and packing such fruits. With our juicier fruits we can reasonably do no less if we are to capture our share of the northwest market.

As to transportation; express rates, while not prohibitive, are exorbitantly high and

injuriously reduce the grower's profits. In carload lots, with a minimum of 20,000 pounds, the express charges per car from southern Ontario to Winnipeg are $2.10 per hundred, with a minimum charge of $420. A crate of berries goes at 30 pounds, making the express charges on a crate 63 cents, in carload lots. The freight rate over the same route is 73 cents a hundred. While this is very much lower, the time for transportation by freight almost prohibits the undertaking for soft fruits. The usual time is 6 days for a distance of 1,300 miles. The Rock Island railroad has established a freight service for western fruit to Chicago of 500 miles in 24 hours.

To assist the Ontario fruit growers in overcoming these handicaps, the writer is attempting, under approval of the Ontario Department of Agriculture, to secure a shipment of fruit over this route by freight. Whether it will be done or not, and if done whether it will be a success or not, will depend largely upon the growers. The fruit must be supplied, picked and packed by the growers. It is not amiss to say that for this selecting fruit of even size, uniform ripeness, proper degree of ripeness, and first-class quality; equally great care in packing the fruit; and a choice of packages that will carry the fruit with least damage —all these are elements necessary to success in a trial shipment. These matters we know already and need not experiment on them.

The point to be determined now is, whether or not under the best conditions certain fruits can be carried successfully as to quality and profit from southern Ontario to the Northwest by freight. It is highly important at this juncture to place Ontario fruit at its best on the western markets. A shipment of our best fruit will sell itself readily at good prices, and not only so, but it will establish a reputation that will sell other fruit that may follow. The market must be captured and held, not by small quantities, but by large shipments of choice fruit.

Transplanting Norway Spruce

W. T. MACOUN, HORTICULTURIST C. E. F., OTTAWA.

Will you kindly let me know the best way of transplanting Norway spruce ?—(W. H. Taylor, Owen Sound, Ont.

The best method of transplanting Norway spruce which are from 4 to 12 feet in height is by digging around the trees late in the autumn and, after the soil is frozen solid, lifting out the tree with the block of soil and planting it in a hole which has also been prepared for it in the autumn. As soon as the ground thaws in the spring the soil should be carefully packed about the tree.

Trees which are only 4 feet in height may be transplanted without much difficulty early in the spring by taking them up carefully with as many roots as possible, but trees 12 feet in height or slightly under succeed best when treated as already described. Apple trees should be cut back from a half to two-thirds of their growth when they are moved. On the whole, this will give the best satisfaction, although sometimes fair results are obtained without much cutting back.

Mounding up about the base of the trunks of the peach trees is very judicious at this season. It is during the months of June, July and August that the peach tree borer *(Ægeria exitiosa)* does its mischievous work, the female laying its eggs on the tender bark just at the surface of the ground. So if there is a heap of fine earth raised about the collar of the tree, the moth misses the mark, or if she oviposits, it is in the hard bark, too far from the root to find easy sustenance.

THE SAN JOSE SCALE IS SPREADING

IN the June issue of The Horticulturist it was announced, in an interesting interview with Mr. J. Fred. Smith, of Glanford, San Jose scale inspector for the province, that the area affected by the scale had increased during the past year. While many growers are awake to the importance of grappling with the situation and are spraying as they have never done before, there are others who have given up the fight against the scale.

That this is the case is borne out by reports received during the past few weeks by The Horticulturist from a number of the township San Jose scale inspectors, who are working in different parts of the affected districts. These reports show that the scale has spread considerably in some sections. In other districts the growers seem to have practically gained control of the situation.

There are a number of sections in the province where the law is not being properly enforced and where the fruit industry will soon be practically ruined unless preventive measures are taken immediately. A drive taken recently by an editorial representative of The Horticulturist, in a portion of the Niagara peninsula, showed thousands of trees that had been destroyed by the scale, still standing, a menace to the fruit interests of the whole district. These plague spots should be removed, and quickly.

HAS SPREAD BADLY.

"I find the scale has spread badly during the past season," writes Mr. M. G. Bruner, of Olinda. "I cannot tell where I will find infected trees. In two peach orchards near where I live, I found an infected tree in each this spring; there were only a few scales on each tree, but enough to cause great damage another year, were they not treated in time. On account of the cold winter the scale received a severe check here, as a large proportion of the peach and plum trees were winter killed. Unless care is taken the scale is likely to spread in apple and pear orchards.

An Unsprayed Apple Tree Affected by Scale.

This Illustration, together with the one on page 330, affords splendid evidence of the benefits derived by thoroughly spraying trees affected by the San Jose Scale, and of the danger of not spraying. This tree, which is located in an orchard near Olinda, Essex county, was first found to be infested with the scale in 1898, but was never sprayed.

There are some townships here that are not taking any steps to keep the scale in check. Our township is the only one that is really doing anything in this direction. A number of trees have died from the effects of the scale. The first spraying was done about a year ago. Trees that were badly infested then are almost free from the pest now. Some growers have tried the caustic soda remedy with apparently good results. A number are spraying this season who did not spray last year."

"In February and March of 1903," writes Mr. Walter Biggar, of Winona, "I in-

spected the orchards in my section which were known to be infested with scale, and also all orchards which were exposed to infection. Wherever the scale was found the owners were notified and advised to spray with the lime and sulphur wash, or any of the authorized remedies. I examined these orchards again this year, and although I found the infested area increasing, it was gratifying to find that the lime and sulphur wash has done its work effectually in cleaning the trees from scale.

"All fruit growers are alive to the fact that it is for their interest to fight the scale. Those who have scale in their orchards are spraying them and doing everything in their power to get rid of this most serious of pests. Orchards that were quite badly infested two years ago are now free from scale after having been treated for two seasons with the lime and sulphur or crude oil washes."

A recent examination of scale infested trees showed that 50 per cent. of the scale were dead, probably killed by the continued severe freezing last winter. We are testing the caustic soda treatment, and lately found that 95 per cent. of the scale was dead on trees that had been treated with it.

There are only two orchards in the Beamsville section, according to Mr. S. M. Culp, affected with scale. One of these was sprayed with kerosene emulsion this spring. The owner of the other orchard has taken out a few trees, but it has done no good, as the scale is spreading over the rest of the orchard. He says that he intends to spray with the McBain mixture.

In writing from Jordan Station, Mr. C. High, inspector for the township of Louth, states that there has been a notable increase in the spread of the scale since last year. He believes that unless growers are more particular about spraying and the law enforced with more vigor the scale may become a serious matter in his section.

In the Grimsby district, Wellington Walker, the inspector for Grimsby township, reports that some growers there are doing nothing to prevent the spread of the scale, and in consequence it has spread quite a little. Growers are complaining that the council does not appoint an inspector to enforce the act, while others claim there is no use in the council appointing an inspector as long as the growers refuse to apply the remedies after they have been notified that their trees are affected with the scale.

A Tree Saved from the Scale by Spraying.

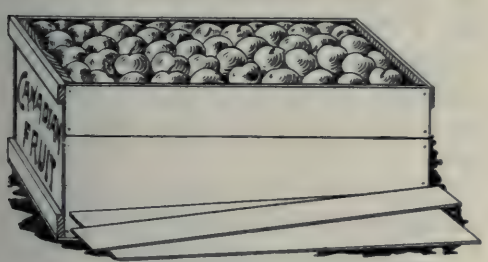
Like the tree shown in the illustration on page 329 this tree was first discovered to be infested with San Jose Scale in the summer of 1898. In May, 1903, it was found the scale was spreading, so this tree was sprayed with the lime, sulphur and salt wash, under the direction of the township San Jose Scale inspector, Mr. M. G. Bruner, of Olinda. At that time there was no perceptible difference between the degree of infection of the two trees. The condition of the two trees on July 9 of this year, when they were photographed for The Horticulturist, is shown.

FRUIT PACKING

WM. WILSON, LONDON, ONT.

THE article in the July edition of The Horticulturist on fancy packing, from the pen of Mr. Linus Woolverton, shows considerable research as far as it goes, and opens a question on which a great deal more might be said. As I have had some experience in fruit packages it affords me pleasure to lay before your readers my solution of the package problem.

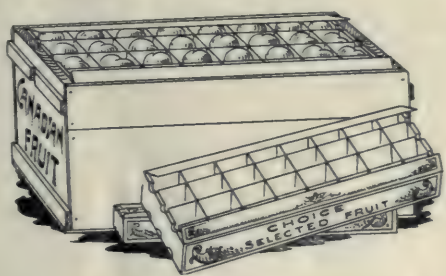
A fruit package should provide every element necessary for the handling and transportation of all kinds of fruit in convenient form from the orchard to the consumer in perfect condition, irrespective of distance, and such a package should be procurable at a price which would enable every fruit grower to use it. The first requisite of a fruit package is to be easily adaptable for



quick packing and handling, and to be strong enough to amply protect even the best fruit from the rapid rough and tumble treatment it often receives during transit, both by rail and steamship, to its destination.

The next consideration is the size and appearance of the package. It should be handy with smooth surface for printing or advertising, and be of good pleasing symmetry as a box. The size, however, is a most important feature if the package is to be universal and equally applicable to all the various kinds of fruit. It must necessarily conform perfectly with the present standard units of fruit measurement (as used between buyer and seller) without the slightest confusion or inconvenience, and in view of these considerations the imperial bushel of 32 quarts has been selected as the best possible size for a universal fruit package. The imperial bushel is in harmony with the size of apple box recommended at the last annual meeting of the Ontario Fruit Growers' Association, but is much more comprehensive as a fruit package.

To be symmetrical as well as economical, the outside length of the package should be exactly double the width, so that four boxes may be piled either lengthwise or crosswise in a perfect square without any jutting or loss of space. This is a very necessary qualification also for piling large quantities of boxes with sufficient firmness, either by

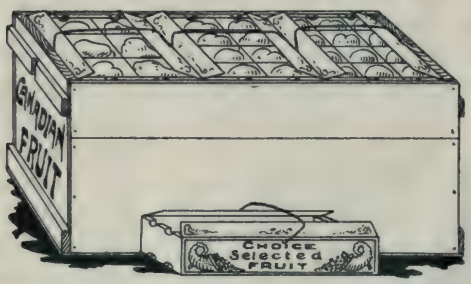


rail or steamship transit or on the wharf, and at the same time boxes should be so constructed that fresh air will always circulate freely between each box, no matter how large the pile of boxes may be. Further, the outside measurements of fruit boxes should be in given proportion to the cubic ton, thus when 25 fruit cases measure just 40 cubic feet (one cubic ton) it is very easy to calculate or check ocean freight.

With regard to economy in shipping carloads of empty boxes to growers the form and size of a fruit package should be so arranged that they will nest one inside the other, although all the same size. Such an arrangement reduces the freight on empty cases to a minimum.

Having touched on the salient points of a serviceable fruit package, I would like to draw attention to the accompanying illustrations and descriptions of such a box as I refer to:

Diagram No. 1 represents a box of winter apples packed in the usual way, which holds an imperial bushel of 32 quarts, equal



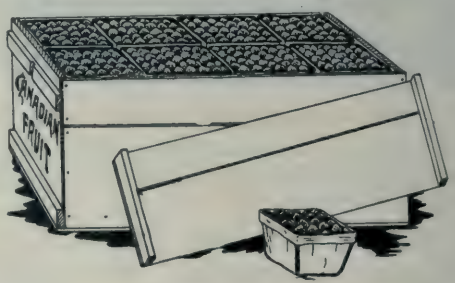
to 40 pounds of Baldwin apples. This box is just one-third size of a 96-quart barrel (same as used in Nova Scotia), but it requires 3½ boxes of this size to equal the Ontario barrel of 112 quarts. or 7 boxes to 2 barrels.

Diagram No. 2 shows the same box with cardboard trays and fillers added for peaches, pears, plums, or fine summer apples. These trays are made with wooden ends which give ample strength for resting one tray on top of another without injury to fruit. The trays have flaps on each side that they may be lifted in and out from the top instead of sliding them from the end of box, which bruised the fruit when the trays were tightly packed; or empty trays may be first placed in the box and then filled with fruit. This overcomes all difficulty of handling trays which are tightly packed. Trays may be made in various depths to suit size of fruit. Thus 3 trays 3 1-3 inches deep will fill the case, while 4 trays 2½ inches deep just occupy the same space, and 5 trays 2 inches deep will also fill the case. These trays are thoroughly ventilated for fast breathing fruits, then fillers are made in all sizes of depths and square divisions to suit the fruit, securing perfect isolation as well as firmness and protection for all the finer grades. When 2½ inch peaches are packed in these trays each tray holds 32 peaches, equal to half of a 12-quart basket, and there being 4 trays of this 2½-inch size to each case, therefore one box holds just two baskets.

Diagram No. 3 is the same box with smaller cardboard trays and fillers, arranged in the same way as Diagram No. 2, but either with or without handles. These smaller trays have the same depths and the same variety in size of fillers as the larger trays, but are exactly one-third of the size in No. 2 Diagram, and being smaller and made of the same thickness of material are much stronger and suit the retailing of the finest fruits to greater advantage.

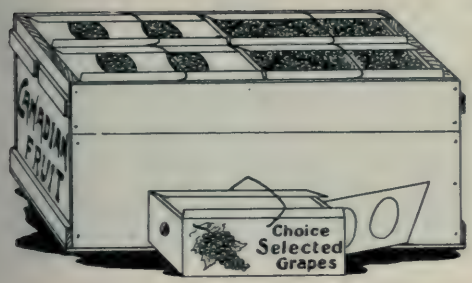
Diagram No. 4 shows the same box holding 24 common wooden boxes of strawberries. These basket berry boxes are equal to four-fifths of a quart, but their bevelled sides take up the extra space. This adaptation provides for all other small fruits as well.

Diagram No. 5 represents the same box holding 12 cardboard grape packages, with



wooden ends, of 2 2-5 quarts each. These have handles and covers, and will carry grapes perfectly to the Northwest Territories and British Columbia.

This box can be made open or closed or with whatever ventilation is required, and can also be made as a returnable or single-trip case as desired. An excellent half-bushel pear case (called a half case) may



also be made by equally dividing this bushel box lengthwise and packing it the same as Diagram No. 1. Having explained my system as fully as possible within prescribed limits, I claim that it has all the merits I have indicated, as well as being an acceptable fruit case in all foreign markets, and when fruit men recognize these facts they will not only have no hesitation in adopting the imperial bushel box as the best solution of the package problem, but they will also admit that it is the only solution entitled to be called The Universal Fruit Package of Canada.

THE HELDERLEIGH NURSERIES

THE combined nurseries and fruit farm of E. D. Smith, M.P., Winona, affords striking evidence of the importance of the fruit industry to Ontario. This nursery is one of the largest in Canada. It contains 600 acres in all, of which 200 are in nursery stock and 200 in fruiting orchards and vineyards. The balance of the land is used to grow feed for the farm stock. The plantations are so extensive and varied as to amuse the casual visitor and cause one to wonder how it is possible for one man to conduct a business of such magnitude.

This huge nursery or the different farms of which it is composed, is located in one of the most desirable sections of the province. It is close to Lake Ontario, near Winona, and not far from Hamilton. The shelter afforded by the mountain, and the moderating influence of the breezes from Lake Ontario both aid in making the situation all that could be desired.

The home farm of about 120 acres is chiefly devoted to ornamental stock of many hundred varieties, including evergreens, shrubs, etc., as well as plum and pear trees and small fruit bushes, also vineyards, peach and plum orchards. About one mile east of this is another section, known as the Carpenter farm, consisting of about 60 acres, which is planted in grapes, dwarf pears, apples and cherries of different ages.

The Green farm, a third of Mr. Smith's places, is located about one mile east of Stoney Creek. This farm comprises about 80 acres, and includes a general assortment of nursery stock, principally apples and cherries. To the east is the Beamsville farm, about a mile and a half from Beamsville, on which is a block of 30 acres in young apple trees set out last spring. Still further east and about a mile north of Vineland, is the Honsberger place, with some 28 acres of two-year-old apple trees and about ten acres one-year-old. West of Vineland is the Moyer farm, on which is a solid block of 12 acres in young plum trees.

An editorial representative of The Horticulturist, who recently had the privilege of visiting the various farms in company with Mr. A. E. Kimmins, Mr. Smith's capable business manager, was as much impressed with the excellent order and splendid system apparent in connection with each of these farms as with the extent of the operations carried on. Were it not for the excellent management of both the field and business departments it would be impossible for Mr. Smith to give the prompt attention necessary to the thousands of orders received yearly for all kinds of fancy and

ornamental shrubs and bushes as well as for fruit trees, to say nothing of the growing and selling of the large quantities of fruit that are handled annually.

WHY THE FARMS ARE SEPARATED.

The farms have been located in different sections for special reasons. It is possible to give almost everything that is grown the variety of soil required for the best results. Tests can also be conducted to ascertain the conditions of soil and location best adapted for different varieties of fruits and shrubs. As young trees do better on new soil, or on soil on which nursery stock has not been grown before, by renting or buying new farms every few years the change in soil required is thus secured. Entire reliance, however, is not placed in this change of soils. Each year finds an expenditure of over $2,000 for compost fertilizers used in addition to the ordinary farm manure.

As already stated, Mr. Smith also carries on an extensive trade in domestic fruits of all kinds. In connection with this a large fruit warehouse and an extensive and very complete cold storage plant have been erected. To avoid loss in the handling of portions of the crops a jam factory is now in course of construction. There are so many large buildings on the farm a friend of Mr. Smith's once remarked that if Mr. Smith continues to build he will soon have his whole farm under cover. When the jam factory is completed all stages of the fruit industry, from the plants and seedlings growing in the field to the natural fruit as well as the manufactured product as it is sold over the grocery counter, will be found on this modern fruit establishment.

A great advantage gained by conducting the nursery and fruit farm combined in this manner lies in the fact that almost all varieties of the different fruits can be thoroughly tested before being sold. This makes it possible for the firm to give reliable information to those customers who, as many do, leave the selection of varieties to the nurseryman. The rapid increase in business during the last few years is the best evidence of the honesty of this firm in this and other respects.

Gathering the Cherry Crop at the Helderleigh Fruit Farm.

Pickers are here shown securing the cherry crop, from some trees of the Napoleon variety, on the home farm of Mr. E. D. Smith at Winona, described in this issue. The orchard contains about 150 trees, some of which this year yielded ten baskets of cherries, although others of the trees produced very little fruit. The trees averaged about four baskets.

An endeavor is always made to supply varieties true to name. If none of the varieties wanted are left in stock when an order is received supplies are secured from some other reliable nursery. "Mistakes," said Mr. Kimmins, "are never made wilfully, but if, by any chance, they should occur, and

A Partial View of the Tree Cellars at the Helderleigh Nurseries.

To avoid delay in the shipping of nursery stock the Helderleigh Nurseries at Winona have erected a tree cellar capable of storing 250,000 trees. The building is here shown as photographed during July by an editorial representative of The Horticulturist. The nursery stock, consisting of a general assortment, is stored in the stone buildings at each end, and is packed in the centre division, one of the doors of which, through which the teams drive, is open.

stock is sent out untrue to name, it is replaced free of charge or the money is refunded."

When it is remembered that there are 200 acres in nursery stock, and that the small trees are placed very close together in rows three or four feet apart, some idea of the extent of these nurseries can be formed. Again, remembering that in all this plantation there is scarcely a weed to be found, the cost of cultivation alone, it will be seen, amounts to no low figure. The aim is to get strong, thrifty stock, and that can be secured only by intense cultivation. A large force of cultivators is kept going all through the summer to conserve soil moisture and keep down the weeds, so that the young trees may obtain all the plant food possible.

Owing to the rapidly increasing number of orders and to Mr. Smith's anxiety to supply only the best stock to his customers and in first-class condition, two large frost-proof cellars have been built for winter storage. Each of these is 100 x 108 feet, and between them is a covered shed for packing the stock and preparing it for shipment. A good idea of the rapid growth in sales can be gained from the fact that in 1898 a winter storage building 40 x 80 feet was all that was used. Some two years ago a second large cellar had to be constructed.

The young trees are placed in these storehouses in the fall and the roots well packed in mellow soil. The numerous varieties of the different kinds of trees are carefully placed in alphabetical order, and roped so as to guard against mistakes. As soon as spring opens and frosts are over packing commences. In this large covered shed packing can go on under any weather conditions, which is a great advantage in a season such as the spring of 1904. This building also ensures proper packing, a very essential point. To guard against the spread of the San Jose and other scale insects all stock purchased is fumigated for 45 minutes before being packed. This is done under the supervision of the government inspector.

A commendable feature of Mr. Smith's management is the fact that he employs the same men at the same work year after year once they have proved themselves capable. Some workmen have been in his employ since the inception of the nursery in 1882, and many have now built houses and made comfortable homes for themselves and their families in the neighborhood.

With a nursery such as this, employing 125 men in the busy season and over 80 during the summer months, Mr. Smith is doing a mighty share to build up the fruit industry of Canada and encourage home production. Visitors are always welcome at the Helderleigh Nurseries, of which only a slight conception can be gained from this description.

APPLE BARRELS WILL PROBABLY BE PLENTIFUL

THERE is not likely to be a shortage of apple barrels this fall. Coopers have apparently been able to make better arrangements than they did last year and to lay in larger supplies. In a number of sections the apple crop will not be as heavy as it was last year, which will also have an effect on the supply of barrels.

While it is not likely the exorbitant prices will be asked this season that were in many instances late last fall, the general price will probably be fully as high if not a little higher. This is indicated by reports that have been received by The Horticulturist from many sections of the province.

The Sutherland, Innes Co., of Chatham, the largest dealers in cooperage stock in the province, believe that the coopers will be able to supply the demand for apple barrels this fall in good shape, as they have secured their stock early, and in most cases bought a very high grade.

"It seems to be the general opinion of the apple shippers," writes Mr. Fleming, the secretary-treasurer of the company, "that a really first-class barrel is required, consequently the coopers are buying mill run and number one staves almost entirely, instead of number twos, as in former years, the latter having been used almost exclusively up to the last year or two. We do not expect that the price of apple barrels will be as high as last year, in fact, we know of contracts which have already been taken at 45 and 50 cents for apple barrels, which is very reasonable, considering the class of barrel which is being put up. We believe that the average price for apple barrels this year will be about 50 cents in Canada and about the same in the United States."

AVERAGE PRICE 45 CENTS.

A large dealer in the vicinity of Trenton, Mr. W. H. Matthews, reports as follows: "I do not think the shortage of barrels will be as great this year as last. I cut my own stock, and will have twice as much as last season, so will be prepared to furnish all the barrels that may be required in this section. The price will be 45 to 50 cents each, but 45 cents will probably be the ruling figure."

WHAT THE GROWERS SAY.

Many growers have already ordered their supplies. Among the growers heard from are the following:

I have ordered 800 barrels for my stock this year, paying about 45 cents each for them. I have never used boxes, but believe they would be more satisfactory and cheaper.—(W .H. Walter, Brighton, Ont.

I will pack all my apples in 30-inch barrels and have secured my supply for the coming season. The cost for barrels will likely run over 40 cents each, as cooperage stock is going to be scarce, judging by the price the larger mills are quoting. The cost will be 37 cents per barrel, not counting the cost of making.—(Wm. Keideman, Shakespeare, Ont.

I prefer barrels, as heretofore they have been less expensive than boxes, easier to handle in gathering the fruit, and much easier to pack. I fear packing material is going to be very expensive.—(R. L. Scott, Port Hope, Ont.

ARE COSTING MORE.

Barrels are costing 10 cents each more this year than they were at this time last year. I cannot say whether the demand for barrels is likely to exceed the supply or not. There is plenty of stock to be had, but I understand the manufacturers have not been able to get their stock out fast on account of so much wet weather.—(W. M. Ellis, Whitby, Ont.

I have placed an order for about 6,000 barrels at 40 cents each, delivered in the orchard. Last season the price per barrel ranged from 35 cents to 70 cents. I do not anticipate the same difficulty securing barrels this season as last.—(W. J. Bragg, Bowmanville, Ont.

THE CANADIAN HORTICULTURIST LEADS THEM ALL

THERE is more live reading matter in each issue of The Canadian Horticulturist than in any of the following three leading national fruit papers published in the United States. The papers included are The Fruit Grower, published in Missouri; The National Fruit Grower, published in Michigan, and American Fruits, published in New York. No comparison has been made with Green's Fruit Grower, published in New York, owing to the fact that this magazine treats a number of other subjects besides fruit. As far as purely fruit subjects are concerned more space is given them in The Horticulturist than in Green's Fruit Grower.

These magazines, like The Horticulturist, are all monthlies. Their pages are larger than those of The Horticulturist but, with the exception of The National Fruit Grower, they have not half as many pages. All these papers carry more advertisements than The Horticulturist, some of them much more. Up to May of this year The Horticulturist made no particular effort to secure advertisements.

Among the other improvements that have been made lately in The Horticulturist, more attention is being given the advertising department. An energetic advertising manager has been engaged, who during the past couple of months has visited and introduced The Horticulturist to leading advertisers in various parts of the provinces of Ontario and Quebec. Before long our readers, we hope, will find our advertising pages compare as favorably with those of the United States fruit publications as our reading pages do now. As regards the standing of our contributors and the up-to-dateness of our news, we challenge comparison. Look over the names of the contributors in this issue.

In the past we people in Canada have done too little in the line of talking about our resources. This information is given to show that The Horticulturist is striking out to become not only the best Horticultural paper in Canada, which it is now, but one of, if not the best on the continent. If our Canadian fruit and flower growers and advertisers will help we can do it.

The following table shows how The Horticulturist stands as regards the number of its pages and the inches of space devoted to reading matter and illustrations as compared with the United States fruit papers mentioned. Below the table are given a few of many flattering remarks made, during the past few months, concerning the improvements in The Horticulturist.

A COMPARISON OF THE JUNE, 1904, ISSUES

NAME OF PAPER.	NUMBER OF PAGES.	INCHES OF READING MATTER	INCHES OF ILLUSTRATIONS.
The Canadian Horticulturist..	52	612	40
The Fruit Grower	20	603	00
National Fruit Grower.	30	460	79
American Fruits.	20	335	19

There is an improvement in The Horticulturist in both the make-up and the attention paid to floriculture.—(W. J. Diamond, Belleville, Ont.

The Horticulturist has improved greatly during the past few months. I hear many favorable remarks concerning it.—(Edward Tyrrell, President Toronto Hort'l Society.

The Canadian Horticulturist improves continually, the last number being the best. —(O. F. Wilkins, Bridgeburg, Ont.

The Canadian Horticulturist has greatly improved lately.—(A. W. Walker, Clarksburg, Ont.

I took The Horticulturist for 15 or 20 years, but have not taken it lately. Shall renew again soon as the paper commences to talk about fruit as well as flowers.—(Stanley Spillett, Simcoe Co., Ont.

The June number of The Canadian Horticulturist was head and shoulders above any of its predecessors, it being practical in every respect, and I wish the magazine continued success along this line.—(J. D. Fraser, Leamington, Ont.

I consider the May issue of The Horticulturist a decided improvement on the earlier issues, as it deals more fully with horticultural and floral matters. The earlier volumes were principally devoted to fruit growing.—(R. W. Lloyd, Sec'y Deseronto Hort'l Society.

We have been constant readers of The Horticulturist for several years, and are much pleased with its recent development, as it is in keeping with the growth of the horticultural interests of the country of which it is a fitting representative.—(Biggs & Son, Burlington, Ont.

OUR FRUIT EXHIBITS AT ST. LOUIS

T. H. RACE, OF THE CANADIAN COMMISSIONER'S STAFF.

CANADA continues to attract her full share of attention at the World's Fair, and the compliments she is receiving from the discriminating fair visitors are oftentimes as amusing as they are gratifying.

We would be ungrateful creatures indeed if we did not appreciate the great favor of being able to grow a few fruits in our great northern snow-bound country. For this reason the average American does not think it anything but natural that we should feel a little pride in our fruit, and he is generous enough to admit that we really have something to feel proud of. But it hurts him, just a little bit, to have to admit that Canada comes next to the great state of California in the extent and quality of her fruit display.

Oranges are lovely things to look at and luscious things to eat, but when it comes to real value as a household commodity there is nothing that will stand comparison with the Canadian apple. And Canada still ranks first in the great palace of horticulture at the World's fair of 1904 in the quality and variety of her apples. We have yet to meet the Canadian down here who is not proud of his country in comparison, even with California. We have yet to meet the American who is not either mildly or extravagantly surprised at it.

Since my last letter to The Horticulturist we have had a banquet in the palace of horticulture, to which many press representatives, and various notables, more or less distinguished, were invited. Representing Canada, I contributed my share to the necessary expenditure, and naturally expected that the invited guests and other visitors would be taken round by the committee in charge to see the exhibits. But nothing of the kind. The occasion turned out a pure contest of oratory, and what the English would call state brag—each state against all the rest. When Canada was called upon I indulged in no blowing. I felt strong in my position that the occasion required none. I merely pointed over to the foreign quarter, close by, and assured the assemblage that there was a collection of fruit over there

representing the capabilities of my sunny land that would talk for itself. But they did not go over either to see it or hear it talk. Maybe they were satisfied with what they heard from me, as I must have shown that I felt satisfied with the strength of my position.

Our apple supply is keeping up well, and is coming out of cold storage in pretty good condition. The Northern Spy, McIntosh Red and Fameuse and Golden Russet continue to attract attention. The Baxter and Red Cheek Pippin are also much admired. In fresh fruits we have scarcely kept pace with other exhibitors, whose sources of supply were nearer at hand. What fresh fruit we have been able to put out has been quite equal in quality to any shown. The first case of strawberries that reached us from the experimental station at Ottawa was not in good condition on arrival here. The Buback was quite unfit to put out, Grenville fairly good condition, Maximum a little better, New York and Wm. Belt fair, and Buster best of all. The day following a case of Wm. Belt arrived from Lachine, grown by C. P. Newman, which reached us in fine condition and proved, as long as they lasted, the largest berries in the pavilion. About the same time shipments began to reach us from St. Catharines. The first lot of strawberries were in poor condition, and only a few were fit to show. The cotton in which they were packed had worked into them, and was difficult to separate from even the best preserved. Those that came later, picked a trifle greener with a thin sheet of paper between the fruit and the cotton, were in much better condition. This packing feature was as true with regard to cherries as to strawberries, the sheet of paper proving an advantage in both cases. All the cherries from St. Catharines, with one exception, came to hand in fair condition, the only exception being one of the early lots in which the cotton had adhered to the fruit, and the cases were quite warm when received. The gooseberries that came to hand from St. Catharines were in fine condition, the Whitesmith proving the largest sample of that variety in the building.

Will you permit me to say that this is the last communication that I will be able to address to Horticulturist readers from the World's Fair, illness at home having necessitated my sudden leaving. The horticultural exhibit will for the balance of the season be in charge of Mr. Henry Knowlton, of the province of Quebec.

PREPARING FRUIT FOR FOREIGN EXHIBITIONS

ROBT. HAMILTON, CHIEF, FOREIGN EXHIBITS OF FRUIT.

IN preparing fruit to be sent to St. Louis, or for any of the Dominion Government's foreign exhibits, it is imperative that it be of really fine quality in every respect. For such fruit this department will furnish all necessary boxes and packing material, with free carriage to the several exhibitions. Printed directions will be given for the intending exhibitor's guidance. Each exhibit must bear the name and full address of the grower, so that he may receive full credit for the production of his orchard or garden.

The case used is that known as the Wilson Patent. Small fruits and plums will be shipped in a case containing 12 trays, which hold six or eight specimens each. Each individual fruit must be double wrapped in tissue paper and carefully placed in its compartment, having been previously cooled by being placed in an airy position or cool room for a few hours. For peaches

and plums, as well as for all soft fruits, the cases must be ventilated.

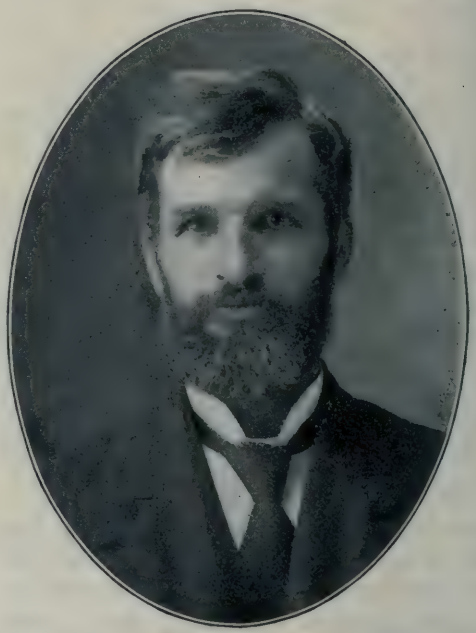
Each case must bear the name of the grower, with the names of the varieties of fruit in it—a case may have more than one variety if necessary.

For the English exhibitions, which open September 1, five samples of all our earliest apples and pears are required. Early apples and pears are also desired for St. Louis, and for bottling for the great Belgian exhibition which will be held next year.

The selection of specimens of fruit for exhibition purposes cannot be done too carefully. Only perfect specimens, typical of the variety, should be selected—not necessarily very large. The greatest care is required to see that no fruit is packed for exhibit bearing any defects due to disease or the presence of insects. Apple scab, blotches, unevenness, indentations, or marks made by branches rubbing the apples, worm holes, etc., even the absence of the stalk constitutes a blemish to be avoided.

The proper handling of fruits for exhibition is important, especially as the slightest bruise interferes with their preservation in cold storage. Apples ripen rapidly after being gathered. Only the shortest possible time, therefore, should elapse between the picking and the placing in cold storage. For the best results, the fruit should be ripe but not what is termed "dead ripe." Tests made in cold storage show that fruit that has not been fully grown is easily damaged by scald and some kinds are liable to shrivel.

The influence of paper wrappers on the keeping qualities of apples has been fully proven. Double wrap every specimen in tissue and manilla paper. Each package should be plainly marked on the outside with the name and address of the grower, and the name of the fruit it contains. This is very important to enable those in charge of the exhibit to determine what the package contains without opening it. The apples should be packed firmly in the package with a light layer of excelsior at the bottom and top to prevent bruises.



The New Chief of the Fruit Division.

The promotion of Mr. Alex. McNeill, senior fruit inspector and vice-president of the Ontario Fruit Growers' Association, to the position of chief of the fruit division of the Dominion Department of Agriculture, to fill the vacancy caused by the appointment to another office of the former chief, Mr. A. W. MacKinnon, appears to have given general satisfaction. Widely known throughout Canada as an institute speaker, and being generally popular, Mr. McNeill, who has a thorough grasp of the fruit situation in Canada, should fill this important office with credit to himself and the industry he represents. The retiring chief, Mr. MacKinnon, has been a most energetic and capable official and the loss of his services to the fruit interests of Canada will be a no inconsiderable one. The new chief, Mr. Alex. McNeill, was born on a fruit farm in Middlesex county and spent several years of his life there. He spent one year on one of the largest and best fruit farms in Central Ontario, on which he first developed a fondness for the fruit business. When a young man he held the position of science master in the Windsor Collegiate for 12 years, but finally bought a fruit farm of 50 acres and planted it all in fruit. After leaving the collegiate he moved onto this farm, and was on it until three years ago, when he was appointed on the staff of the Fruit Division at its organization in 1901.

It is expected that fruit growers in the several provinces will aid the Department of Agriculture to make the fruit exhibit from Canada a complete success in every particular. It is needless to say that success will depend on the hearty cooperation of every one who grows any kind of fruit. Concerted and strenuous effort will be necessary on our part if Canada is to maintain the position she claims of producing the finest apples, etc., in the world. Boxes, wrapping paper and cardboard divisions will be supplied to contributors free of charge on application.

POINTERS ON THE PACKING OF FRUIT

ALEX. C. BRIGGS, BURLINGTON, ONT.

NOW the season is approaching for the packing of apples for the export trade, a sketch of the plan I have adopted and which seems to have been successful both here and in the European markets may be of interest.

The idea of a uniform packing case is a good one. The case should be 10 x 11 x 20 inches, inside measure, and it would be well if all growers could adopt it, but in some cases our markets prefer the 40 pound case, so we are obliged to give them what they want. The present ordinary case, as now made, is anything but an ideal box, as it has many serious objections. I handled many thousands of these cases last season, and it was a constant source of loss and annoyance, as unless the ends were reinforced there were many breakages even before the boxes were sent on their long journey. A stronger box is needed in order that our fruit may arrive at its destination in good condition. There are other serious objections to this case, including the fact that there is no protection for the bulging portion. It has, however, its good points, and we must make the most of them until we get something better.

THE PACKING.

All exporters of apples in cases well know there is a decided objection to the use of much packing material of any kind, and more especially excelsior, unless it is kept entirely clear of the apples. With the object in view, therefore, of filling the box with apples, I have discarded the packing material on the face of the box, and have substituted a piece of pulp board, about the size of the inside of the box. On this pulp board our name and residence is given. This affords a grand opportunity for original advertising, which could be made good use of by any person so inclined. Fancy shelving paper is placed on the pulp board.

Some who read this will perhaps think it expensive and foolish to go to the trouble of putting all this fancy work on such common fruit as apples, and they may claim the apples will not taste any better, all of which may be perfectly true. At the same time, it is a well known fact that apples are not so common in Europe as some people suppose, and that fruit (no matter how good it may be) put up in a careless way, will not compete in the market along with the fruit put up in a neat, attractive and clean manner. The man who is alert to his own interest, and also to the interest of this "Lady of the Sun," as well as "Lady of the Snows," will not be so penny wise as to refrain from making his fruit packages as clean, neat and tasty as possible.

THE NEXT STEP.

After the fancy shelving paper is placed in the stems are clipped off and the apples are faced in two sizes as near 2½ and 2¾ inches as possible. They are placed in separate boxes, which are marked with a stamp, "Minn size," 2½ inches or 2¾ inches as the size may be. The case is then filled as closely as possible. If the apples are of a tender variety and first class, care is taken to see every apple is wrapped, excepting those on the face, as it pays well to do so. The apples arrive in better condition and sell for many times more than it costs to wrap them.

Many growers claim it is utterly impossible to do this work at such a busy season. With many no doubt it is. Here is where we see the necessity for a storage and a packing house with expert packers and new methods that will do the work and give the buyers and consumers that uniformity and right packing which they are willing to pay for, and to the grower and packer the right returns which they are entitled to. If growers under present conditions cannot

afford the time to wrap tender varieties perhaps they can store them until the bulk of the fall work is over or even until winter, which is the most suitable time from a work point of view. Growers should not fail to place a piece of paper the same size as the inside of the box, between the apples and excelsior, as by that means the apples will be kept clean and look much better when placed on the market.

APPLE GROWING IN NOVA SCOTIA

A. M'NEIL, CHIEF, FRUIT DIVISION.

THE conditions under which apples are grown in Nova Scotia are somewhat different to those which prevail in the apple districts of Ontario. On the whole it must be confessed that the growers in Nova Scotia receive higher prices than the Ontario growers, and this is encouraging very large plantings in favorable localities.

The bulk of the fruit is grown in the Cornwallis and Annapolis Valleys, with some excellent smaller sections in the valley of the Gaspereaux and in Lunenburg county. The most marked characteristic is the growing of apples to the exclusion of almost all other crops, and hence the resort to artificial fertilizers. The extent to which these are used would seem most extravagant to Ontario farmers. At some of the small railway stations in the Annapolis Valley individual agents report sales to the extent of $10,000, $12,000 and $15,000. I cannot help thinking it a source of danger that the live stock industry is so largely neglected. Clean culture in the orchards prevails, and spraying is more common than in Ontario.

I noted recently, while in Nova Scotia, that in the new plantings winter varieties prevailed almost exclusively. The Baldwin is not a favorite; the Golden Russet, Nonpareil, King, Spy and Blenheim are largely planted. The Stark and Ben Davis have many friends. Among the difficulties must be mentioned the collar rot and canker, diseases more prevalent in the Annapolis valley than in any other section in Canada that I have visited. The ordinary black knot, apparently, is allowed to develop without let or hindrance, to the great detriment of the plum and cherry industry.

THE TREES ARE VIGOROUS.

The Ontario apple grower might well envy the vigor of the Nova Scotian trees, due in part to the moist climate, but more to the excellent care the trees receive with regard to culture and pruning. High-headed trees are universal; and the Nova Scotian knows no special orchard tool. A number of the orchardists work close to the trees with oxen, but the fact that they require a driver and are very slow bars them out from work for which they are otherwise well suited. Close planting is frequently practiced. Mr. Ralph Eaton, a most progressive and successful fruit grower, has as many as 320 trees to the acre. Though Mr. Eaton has made a success of this method I feel sure he would have done still better with the same number of trees on a larger acreage.

It is the custom of apple growers in Nova Scotia to pack their own fruit, and it works much more satisfactorily than the Ontario system of having the apples packed by the buyer. At nearly every station some enterprising English firm has erected a storehouse, so that the orchardist always has a convenient place to store his fruit, but of course he is limited to the market offered by this firm. The subject of cooperation is receiving considerable attention in the valley, but as yet there are no active societies in operation.

SMALL FRUIT GROWING ON A LARGE SCALE

ONE of, if not the largest small fruit growers in the province is Mr. A. Railton, of Fonthill, whose place was visited recently by an editorial representative of The Horticulturist. On Mr. Railton's farm there are 30 acres of raspberries alone, and he grows most of the other varieties of berries on about an equal scale. The soil which has given him the best results is of a sandy, gravelly nature. The value of thorough fertilization is fully realized by Mr. Railton, who uses from 15 to 20 tons of barnyard manure every third year on his berry patches.

"I would," said Mr. Railton, "apply fertilizer more frequently were I able to obtain it. As it is, I keep about 80 head of beef cattle through the winter simply that I may obtain their manure. Seldom do I make any profit from these cattle. Some years I am able to realize a little money in the spring from the cattle, but often I am not. On the whole I only come out about even through handling this stock, and would run behind were it not for the manure I get from them.

"Altogether I have 125 acres of fruits. This year I lost 27 to 28 acres of strawberries owing to the severe winter just passed. or I would have had a total of 70 acres in berries alone. Had the strawberry crop proved all right I would have had to employ about 200 pickers this season, but as it is I have only about 80 engaged.

"My pickers are mostly women, boys and girls, a number of whom live 20 miles away from my place. For their convenience I have a house 100 feet long in which some 20 to 40 pickers live from the middle of June to the middle of August. They start with the strawberries and end with the picking of blackberries.

"Pickers are allowed one cent for each box of strawberries and blackberries, and one and a half cents for raspberries. Most of them make 50 cents to $2 a day, although some girls make as high as $3 a day picking blackberries. It is nothing uncommon to have pickers make $2 a day for picking strawberries and raspberries.

"My raspberry bushes are set three feet apart, with eight feet between the rows. The rows of blackberries are nine feet apart, with three feet between the bushes. I prefer these distances, for they are convenient when we are cultivating the land. It is possible to use a disc harrow between the rows. I prune three times during the year. The old wood is taken off in the fall after the fruiting is over; the young canes are clipped back in the summer and are shortened in the spring."

Picking Raspberries on a Fruit Farm in the Niagara District.

Raspberry pickers at work on the fruit farm of Mr. A. Railton, of Fonthill, are here shown. As stated in the article on this page, Mr. Railton, who sells the bulk of his berries to the canning factory, finds it necessary to keep a large gang of pickers at work the greater part of the summer. They are paid according to the amount of berries they pick.

Good Varieties of Berries

AN editorial representative of The Horticulturist who, during July, visited the fruit garden of Mr. D. M. Lee, of Paris, had an interesting talk with him concerning his methods of growing small fruits. "I raise only one variety of raspberries, the Cuthbert," said Mr. Lee. "I have tried the Marlboro, Shaffer's Colossal, and Brandywine, and discarded all. The Marlboro needs too much petting and manuring, and even then the results are often poor.

"My berry bushes are planted in continuous rows almost eight feet apart. The best varieties of black raspberries with me are Craig and Mammoth Cluster. I plant them in the same way as the red and support the canes by two strands of wire about two feet or more from the ground on either side of the row.

VARIETIES OF STRAWBERRIES.

"The best paying varieties of strawberries are Climax, Clyde and Williams. The Climax has been exceptionally good this year, and is a good seller. However, it is slightly soft for shipping. The Clyde is a good all-round berry and solid enough for shipping. The Crescent was the best berry with us for years, but seems to be running out."

"If the weeds get a start I plow up the patch at the end of the first season, but if the patch can be kept moderately clean I take two crops. On a two-year-old patch the berries ripen earlier, but the fruit is smaller and poorer in quality.

"Raspberries on my two-year-old bushes are as good as I ever saw them, but in a four-year-old patch the bushes were badly winter-killed and the result is a very light crop. It seems that the severe winter was much harder on old than on young plantations."

You should receive The Horticulturist promptly on or about the first of every month. Do you? If you don't, let us know.

The Raspberry Cane Borer

PROF. W. LOCHHEAD, ONT. AGRI. COLLEGE, GUELPH.

What is the trouble with my red raspberries? The young shoots are withering and drooping. Have the two rows of punctures on the stem anything to do with the wilting? For three years I have lost many of the plants, and this year the loss will be greater than usual.—(S. W. F.

The cause of the wilting of the canes is a long-horned slender beetle about half an inch in length, of a black color, except a yellow ring behind the head. The eggs are deposited in June in little holes between the two rows of punctures you observed. It is supposed that the beetle makes these two rows of punctures to prevent the crushing of the egg. The grub, on hatching from the egg, bores downward in the pith of the cane, reaching the crown of the root by fall.

To control this borer prompt action is necessary. As soon as the canes are seen to wilt, the wilted portion should be cut off below the rows of punctures. In doing this the grub is killed before he has done much harm. If the whole cane shows signs of dying it would be well to cut out the infested canes and burn them. Do not postpone the cutting and burning too long, for by fall the grubs will be in the root and beyond reach.

I Have 60 Varieties of Grapes, and the leading commercial sorts are Worden and Concord in the blacks; Delaware and Lindley in the reds; and Niagara and Moore's Diamond in the whites. The Worden is my best money maker, and is the hardiest. It should thrive as far north as any grape grown. It is large and productive, with a handsome bunch of dark purple fruit. Some growers complain that it is too thin skinned to ship well, but I find it reaches our Canadian markets in good shape. The Concord, of course, is a good standard grape.—(A. W. Peart, Burlington, Ont.

HOW THE BRIGHTON GRAPE WAS SECURED

FRANCIS WAYLAND GLEN, BROOKLYN, N. Y.

THE article in the June issue of The Horticulturist by Mr. W. T. Macoun, entitled "The Individuality of Fruits," opens a most important and interesting line of experimenting and careful observation.

An interesting experiment regarding the individuality of the grape was once brought to my notice. It was conducted at Oshawa, Ont., by Mr. Isaac Moore, the originator of the Brighton grape, who selected the finest cluster of grapes on a vine of the Rose Chassellas, before the blossoms began to open.

The grapes were covered with a very fine thin muslin so that no bees or insects with pollen on their legs could get to the blossoms when they opened, and to also protect them from any pollen which might be floating in the air. The best cluster on a strong plant of Concords was also treated in the same manner out of doors. When the pollen was ripe the cluster from the Concord was cut off and carried to the vinery. The muslin from both clusters was opened and the pollen from the Concord shook over the Rose Chassellas and at once covered again with the muslin. This remained covered until the berries were formed.

The experimenter was then sure that he had a cross of the Concord and Rose Chassellas and no other mixture. From the seed of that cluster he obtained the Brighton. The mother or female was the Rose Chassellas; the Concord contributed only the pollen. The Rose Chassellas produced the seed in the fruit. From the father (the Concord) the Brighton inherited its strong, hardy, vigorous leaves and branches, free from mildew when grown out of doors. From the mother, or female, its rose color and delicious flavor were taken. The history of the origin of the Brighton grape shows what can be done by crossing different varieties of fruits and how to do it in a way that will aid others who have the time, patience and inclination to cooperate with Nature in the improvement of fruits and flowers.

The average fruit grower does not appreciate the full meaning of the fact that plants, like animals, are male and female, and also that plants have many of the traits and characteristics of animals. Plants are lazy like some men. They will send out roots a long way for food if they must. Three years ago a tall plant in my garden was blown over by the wind. The roots were all on one side. I examined the earth about it and found that three feet from it on one side was a quantity of manure from the stable and all of its roots were going for that manure. Those on the opposite side had curved round and were making for that pool, because it was near at hand.

Have plants the sense of smell? I will give some facts that have come under my personal observation that bear on this problem in a future issue. I cannot close without commending the paper of Mr. Macoun. He has opened up a field for a very interesting discussion which cannot fail to lead to beneficial results.

Between the great amount of rain and the consequent wetness of the soil, and the scarcity and exceedingly high price of labor, fruit growers this season will necessarily have to give less cultivation to fruit plantations and vineyards.—(A. W. Peart, Burlington, Ont.

The grounds around school houses should be made to speak out in a language intelligible to all. We should associate as many attractive things around them as can be brought together. Flowers and plants are most pleasing additions to the house as well as to the grounds.—(P. G. Keyes, Ottawa.

CANNING FRUITS*

MISS MAY SMELLIE, BLUEVALE, ONT.

FRUITS for canning or preserving should be carefully selected and all that are imperfect or tainted removed. They are in the best condition when not too ripe, and should be canned immediately after picking, especially the small fruits. The strawberry is an exception, which is much improved both in color and firmness if allowed to remain in a dry cool cellar for 12 hours after picking, leaving the berries on the stem.

Fruits canned in glass jars should be kept in a darkened room or cupboard, as the chemical action of the light will effect the quality and color even though perfectly sealed. The glass sealers should be carefully examined before using to see that the lips or lids are not chipped or cracked. The rubber rings should be renewed each season, as neglect of one or of all of these things has been accountable for many a jar of spoiled fruit. Use only the best quality of sugar for canning or preserving. Much time will be saved during the canning season if the dry sugar is placed in the oven and thoroughly heated before using.

Picking Gooseberries at the Helderleigh Nurseries.

The gooseberry crop on the fruit farm at Winona of Mr. E. D. Smith, M.P., which is described in this issue, would be considered a large one on many farms, but is an unimportant one with Mr. Smith. This photograph was taken by one of the editors of The Horticulturist during July.

TWO GOOD METHODS.

Here are two preparations of syrups which have given excellent results in the canning of small fruits, such as strawberries, raspberries, red and white currants and cherries. Take one cup of sugar to every two cups of water; boil gently for three minutes and skim. If a stronger syrup be desired, take one and a half cups of sugar to every two cups of water, and prepare in the above manner.

Fill the sealers (which have been previously heated) with the raw fruit, put on the glass top, and place in the oven, letting them remain there until the juice starts. Then remove them and pour on the boiling syrup and seal. Raspberries may be put in the hot sealer and the boiling syrup poured on and sealed without putting in the oven. Cherries, raspberries or other fruits intended for the winter pie making, retain more of the natural flavor if canned without sugar. Put the fruit in a stew kettle and let it come to a boil, then bottle and seal.

These fruits are also prepared in another way. Fill the sealers with the raw fruit, screwing on the glass tops without the rub-

* From a paper read at a women's institute meeting.

ber rings and place in a wash boiler. Fill the boiler with cold water up to the necks of the sealers, and when the water comes to the boiling point remove the fruit and pour on the boiling syrup and seal.

Red or white currant marmalade is made by crushing the raw fruit, which should be dead ripe, to a pummace. Put equal parts of the crushed fruit and sugar into a wide mouthed crock, stir thoroughly every day for a week. At the end of that time the juice will be found to be a thick jelly. Bottle and keep in a dry cool place.

To make red or white currant jelly, put the fruit into a preserving kettle and scald. then cool and strain. Boil down the juice to half its quantity, and to every pint of juice add one pound of sugar. Boil briskly for 20 minutes and put into glass jelly moulds.

BLACK CURRANT JAM.

Wash the fruit thoroughly, as it prevents it from becoming tough or leathery when cooking. Boil for eight or ten minutes and then add one pound of sugar for every pound of fruit, boil 10 minutes longer, bottle and seal. The addition of raspberry juice improves the flavor of the jam very much.

For gooseberry jam the fruit must not be altogether ripe. Pick and put into a wide mouthed jar or preserving kettle. Cover the fruit with boiling water, and let it stand until cool. Drain off the water, which will be found to contain a great deal of the strong acid which makes this fruit so unpalatable to many people. Add one pound of sugar to every pound of fruit. Boil 20 to 30 minutes, then bottle and seal.

To make spiced gooseberries use one-half pound of brown sugar for every pound of fruit, and nearly cover with water. Add vinegar to make it quite tart and put in cloves and cinnamon to suit the taste. Let it come to a boil and then simmer on the back of the stove for ten minutes.

ROSES SUITABLE FOR CANADIAN GARDENS

*W. G. BLACK, OTTAWA, ONT.

IT is some years since I first imported and planted roses. They grew and bloomed, friends came to admire. Then I planted more, and hunger and appetite came with eating, and the more roses the more beauty and bloom, until I was not satisfied with the admiration of friends; the public must gaze. I took down the wooden fence surrounding my garden and erected a low wire one instead, so visitors who love roses might see the flowers.

I think those of you who have seen the garden will concede that I have been fairly successful in growing the choicest of this "Queen of Flowers" as easily as almost any other plant can be grown. I am often asked what is my favorite rose? And the reply is, I don't know. The reality is this—it is impossible to love one rose, and not love them all, and I think all true gardeners will see something to admire in every flower that grows. The general impression has been that it is very difficult, if not impossible, to grow garden roses in this country. As a Scotchman poetically soliloquised, looking at some plants sent him from his "Ain Countrie,"

"And wull ye bloom us sae fair,
Ye roses plucked from Eastern bowers;
Can ye withstand the Northern air,
Those bleak, long, wintry frosts of ours?"

Well, I submit this enquiry can now be answered in the affirmative, but don't imagine you can cultivate a pretty garden of roses, or for that matter a pretty garden

* Extract from an address delivered before the Ottawa Horticultural Society.

of anything else, without giving it much careful attention.

MANY DIFFERENT VARIETIES.

The varieties of roses are innumerable, and are remarkable for the extent to which they differ in habit, foliage and flowers. Present day garden roses are so unlike what may fairly be assumed to be Nature's roses, that it is difficult, if not impossible, to tell from what variety they have descended. Out of the 50 odd varieties, the group of hybrid perpetuals for some years past has supplanted all others, as most of them are hardy and give beautiful bloom. I suppose 80 to 90 per cent. of all the roses shown at exhibitions belong to this class, including Paul Neyron, Her Majesty, Earl of Dufferin, Mrs. John Laing, General Jack, Etienne Levet, Charles Lefebvre, etc.

Within the last three or four years a new class has been making rapid claims for popularity, and it is the Hybrid Tea, the great merit of which is that it blooms profusely nearly all the summer months. It is only necessary to keep them growing, to keep them blooming, for every eye or leaf bud that pushes into a branch produces a flower or flowers. In speaking of this, Mr. Dickson, of Belfast, Ireland, says "The Hybrid Tea is a class rapidly coming to the front, and in fact bids fair in a few years to outrival all others. This group is a creation of recent years, and has been derived by crossing the Hybrids with the Tea scented, the result being a class of very free flowering, with fine glossy foliage, and long pointed buds."

I have found them fairly hardy, having grown them in my garden for the past four years. This class comprises Lafrance, Caroline Testout, Mrs. W. J. Grant, Killarney, White Lady, and many others. There is at least one rose of the polyantha class that every person in Ottawa who grows roses ought to have, which is the Crimson Rambler. It was estimated last year that one of my bushes carried between 12,000 and 15,000 roses when in full bloom.

To my mind about the best dozen hybrid perpetual roses for our Canadian gardens are the following: Captain Hayward, Countess of Roseberry, Clio, A. K. Williams, Duke of Edinburgh, Baroness Rothschild, Etinne Levet, General Jacqueminot, Madame Gabriel Luizet, Earl of Dufferin, Mrs. John Laing, Mrs. R. G. Sharman Crawford. For a perfect silver pink rose Mrs. Laing stands head of the list, just the same as Lafrance stands head and shoulders over all others in the Hybrid Tea class.

Just here let me give other amateurs who may not have had quite as much experience a little advice. Be careful about discarding old favorites to make place for the sensational, new high priced swaggering novelties which have their glories trumpeted in all the floral catalogues. Very fashionable people are always chasing after something fresh, they must have the very latest, and the nurserymen get rid of their new novelties at $1 to $3 each, and many of them will be very disappointing.

Therefore, hang on to the old rose bush with good constitution, whose blooms have, say, four essential qualities, color, form, a good bloomer in autumn, and last but not least, fragrance. Form may take first place in points of merit, but all roses should be sweet; we cannot disassociate fragrance and the rose.

The exhibit of plants and flowers at the Dominion exhibition at Winnipeg will be judged by Wm. Hunt, of the Ontario Agricultural College, Guelph, who left on July 22 to be present.

If farmers would keep half the number of cows they do, and put the extra time saved in the cultivation of fruit, I am satisfied they would be acting wisely and that they would gain financially.—(Chas. Hay, Ontario.

HARDY CLIMBING PLANTS FOR ORNAMENT AND USE

J. McP. ROSS, TORONTO, ONT.

HARDY climbing plants may be properly divided into two classes, the hard wooded or shrubby climbers, and the hardy herbaceous climbers. The whole family of climbing plants are a delightful class to admire, and seemingly possess, apart from other plants, a sort of thinking sensitiveness. As you watch their tendrils swaying in the breeze seeking for something to cling to, and after observing the proper thing which they have seized to twine about, it would almost seem as if the plant were endowed with positive conscience. I am almost tempted to put the rose first in the list of hardy climbing plants, but must award the position to the grape.

In the grape vine Nature produces one of the most useful plants in creation, and had she but adorned it with flowers of the clematis type we would have had, I think, everything desired in a climbing plant. In it we have graceful habit, beautiful foliage and luxurious fruit, and when asked by any one what climbing plant to get, I advise first if it is a suitable place, to put in a grape vine. For southern exposure nothing could be more useful, all that is necessary being a little more trouble in tying up. I have frequently seen in American cities, arbors and porches leading up to the front door of the house covered with grape vines, forming pictures of beauty not easily forgotten. For covering old outbuildings and fences it is unexcelled, and trained upon trellises makes most valuable screens. Next to the grape comes the rose, which it is al-

One of the Many Attractive Garden Effects in Ingersoll.

The porch of the home-like residence of Mr A. B. Ord, Manager of the Traders Bank, Ingersoll, is here shown. It is covered with clematis, which was photographed when literally a mass of bloom A number of the enthusiastic horticulturists in Ingersoll are planning the organization of a Horticultural society and none are taking greater interest in the movement than Mr. Ord.

most needless to describe. Its beauties have been sung for ages, and a climbing rose in full bloom makes its possessor an envied person.

VARIETIES OF ROSE.

The varieties of the rose are too numerous to mention, but some new novelties are highly praised and greatly advertised. I refer to the Crimson and Yellow Ramblers. They thrive in good, rich drained soil of a clayey nature, and better in not too warm situations. As the rose is subject to numerous insect pests it requires more care than the grape vine. Frequent sprayings of fir tree oil soap and kerosene emulsion and plenty of soft water sprayings will keep the rose vine in healthy order.

The clematis is an ideal climbing plant of rather a fragile character in the nature of its growth, which is amply compensated for by the beauty of form, size and color of its blossoms. Grown in a bed on the lawn and trained up a center stake topped with an umbrella form of wire, its graceful foliage and flowers growing over in reckless profusion make it a delightful ornament for small places. The Ampelopsis family form most beautiful climbers; the Boston variety might be termed more properly a creeper. They all possess the most varied foliage and are exceedingly beautiful in the fall, when the foliage turns purple and crimson. There are quite a number of varieties of the Virginia creeper, but we will just notice the Ampelopsis Quinquefolia, or American Ivy. This, like the Bignonia and ivy, throws out tendrils by which it fastens itself to anything it touches, grows rapidly, and soon affording shade and covering.

Ampelopsis Veitchii has much smaller leaves than the American, overlapping each other with the utmost regularity, making a perfect matting of green. It is a little tender when young, and only three-year-old plants should be procured for planting out. Of the most rapid growth, it clings tenaciously to anything it touches, like ivy, and is invaluable for planting around old stumps of trees, rockeries, or stone or brick buildings. Its bright green foliage gives a pleasing contrast of color, and particularly lovely are its autumn tints.

The Aristolochia Sypho, or Dutchman's pipe, is a hardy native climber of rapid growth, with large light green heart-shaped foliage and curious pipe-shaped yellowish-brown flowers.

Celastrus Scandens, or Staff tree, is another native climbing plant. Very familiar in our woods, intertwining amongst and over other trees, it presents a pleasing sight with large leaves and bright orange capsuled fruit. The Honeysuckle family is an old favorite class of climbers, the most prominent being the scarlet trumpet, yellow trumpet, monthly fragrant and Hall's honeysuckle. The last has white flowers, changing to yellow.

The Periploca Gracea, or silk vine, is an excellent and pretty climber, with glossy foliage and purple flowers. The Bignonia Radicans, or trumpet flowers, is one of the finest climbers, with palmated foliage and scarlet orange tubular flowers, and is a desirable climber.

The Wistaria, another of the finest of climbers, requires a warm situation, its long purple fragrant plumes of flowers being very handsome.

One old favorite of mine is called Clematis Graveoleus. This is a yellow clematis of the hardiest nature. After the flowers have fallen they are followed by lovely silken tasseled heads of seeds, which are even more beautiful than the bloom.

HARDY HERBACEOUS CLIMBERS.

The cinnamon vine is hardy and has edible roots and neat glossy corded foliage. In midsummer it bears small white fragrant flowers, with an odor like cinnamon. It is a pretty vine to train over a trellis or a window.

The Hop is a well known indispensable vine which form one of the finest of climbers, but they are rather subject some seasons to insects. For the early part of the summer they are exceedingly handsome in their rampant growth. Though the bulbs of the Maderia vine have to be taken up and kept in the cellar, yet we could not pass it over without mention. It is an exceedingly useful climbing plant, with its deliciously fragrant white flowers, which it bears abundantly

Our summers are so short that some plant and flower beds are hardly more than coming in to their best when the season's growth is terminated by a frost. Where there is a good collection of climbing plants, permanently established, covering our verandas, arbors and outbuildings, they possess that appearance of abundant vegetation so desirable and ornamental about our homes.

AUGUST WORK IN THE FLOWER GARDEN

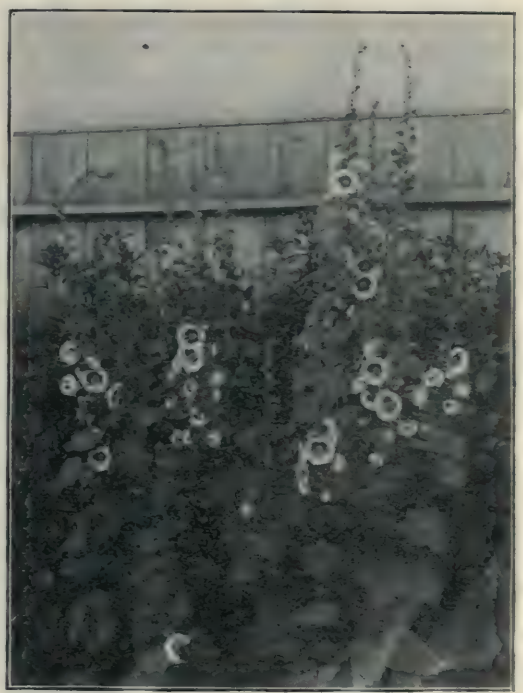
WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

THIS is a good time to strike cuttings of coleus, heliotrope and geraniums if young plants are wanted to keep over winter. By striking them now they become nice strong plants to take into the window in the autumn.

A shallow box about two and a half or three inches in depth of the size required, filled with sharp fine building sand is best to strike almost any kind of plant cuttings in. Place the box of cuttings where it will be partially shaded from the sun during the hottest part of the day. Keep the sand almost moist but not soddened with water. There should be holes bored in the bottom of the box to allow of free drainage. If only a few cuttings are wanted, flower pots can be used instead of the box.

FREESIAS.

If early flowers are wanted of these deliciously perfumed and easily grown window plants, a few bulbs should be planted about the middle of August or early in September. Put about five or six of the bulbs in some good potting soil in four or five-inch pots. Stand the pots outside on some coal ashes or gravel under a fence or building, or in some position where the sun does not strike too hot. Water them well once when first potted, and then water them only enough to keep the soil moist but not soddened. The pots can stay outside until



The Single Hollyhock.

The above photograph was taken last fall from a self-sown plant two years old in the garden of Mr. A. Alexander of Hamilton. In the single hollyhocks the flower lover has material for an unlimited display of color for the months of August, September and October at little or no trouble or expense. Near where this plant stands there are hundreds of seedlings, which no doubt will be as various in color and habit as in number, for near it stood other hollyhocks with some of the most fashionable colors, and the bees have undoubtedly done their duty in the hybridization of this plant. One reason for the cultivation of single hollyhocks is their comparative freedom from the hollyhock rust

about the middle of September, when they can be removed to the window.

To secure pansies that will produce flowers very early the following spring the seed should be sown about the third week in August. Pansy seed sown at the time mentioned will produce plants that will winter over well in a cold frame and produce early flowers. The protection of a few boards may be necessary over the frame during very severe weather in winter, but not if the plants are well covered with snow. The most critical time for autumn sown pansies is when the snow is melting away from them at any time during winter or early spring, hence the use of boards to prevent the snow melting on bright days in winter, or to shield them from the sun for a few days when first exposed to the sun in early spring days after the snow has gone.

Gladiolus should be staked up if they are liable to be broken down by wind storms or rain. This should be attended to early enough, as the stems often break off close to the corm or bulb, thus destroying the bulb for the present or successive seasons.

If any of the hardy lilies in the garden must be removed or transplanted, about the end of August is the best time to do it, but it should always be borne in mind that the less the bulbs of lilies are disturbed the more likely they are to continue flourishing and flowering. None of the garden lilies like to be disturbed very frequently, so that unless it is absolutely necessary, it is best to leave them undisturbed. Lily of the valley can also be transplanted late in August or early in September if required.

A mulching of rich soil or of thoroughly rotted stable manure about half an inch in depth placed over clumps or beds of lilies or lily of the valley will often reinvigorate them and produce much better results for a few years than transplanting them. If lily of the valley is transplanted the pips or bulbs should be planted so that the tips of the bulbs are not more than an inch under the surface of the soil. The surface of the soil should be patted down firmly after they are planted. A light mulch of manure placed over them late in autumn will also benefit them.

A PLEA FOR THE HERBACEOUS BORDER

CHARLES H. KINGSLEY-BAILLIE, WINONA, ONT.

EVERY year quite a number of new herbaceous and perennial border plants are introduced to the flower-loving public, but there are few which surpass those that we know so well in the old-fashioned gardens. There are, however, many of the older herbaceous plants which seem to be neglected.

When one is making a new home, and a new garden, the borders are planted with shrubs, and the place is given a certain look of permanency, but what a constant succession of color may be obtained from the introduction of a few herbaceous plants. They have a grandeur peculiarly their own, and their place cannot be easily filled by any other class of plants in the garden. With such a wealth of form and color as may be found in the masses of larger plants, and many of the conspicuous smaller alpine plants, their importance in the garden is very apparent.

My memory takes me back to a very old border in a very old garden, which though neglected perhaps, was beautiful in its wildness, and there was always a succession of beautiful bloom. What can be grander in the border than the blazing bloom of the Oriental poppies, or the long spurs or delphiniums. These and some of the stronger

growing herbaceous plants, such as the centaureas, the echinops with its funny globular heads, the tritomas and the peonies may be planted against the taller shrubs and will adapt themselves very soon to their situation.

There are so many of the irises, the German, Japanese and Spanish, with their richness of bloom and color, and which need little if any attention at all except perhaps sometimes in the German to check their unruly growth. These, too, may take a place planted amongst the taller shrubs. Of the smaller plants which are adapted to border planting, there are legion, but there may be mentioned the anemones, aquilegias (columbines), with their variety of blossom, the coreopsis, the doronicum, which is in one perpetual state of bloom, the gaillardias, the Iceland poppies, veronicas, totentilla, the statice and quite a host of other plants, some just as stately, and forming a striking feature, others charmingly compact and proper, filling each place alloted to them with an individuality quite their own. Of the smaller plants which may be used for the edges of the border there is a wide field to choose from. But one need not go further than the varied saxifrages, the primulas, campanulas, or the old-fashioned dianthus, the silenes, alyssum, aubretia and many others equally charming but too numerous to mention. Amongst this extensive variety of border plants there is much that is highly decorative, and many an unsightly spot or ugly wall may be made effective by the judicious planting of herbaceous and alpine plants.

FLOWER AND PLANT LORE*

EDWARD TYRRELL, TORONTO.

IT is impossible to arrive at any idea of the varieties of roses grown in eastern countries, but Pinkerton, in his book, Travels in Persia, says "I saw beautiful roses, both white, yellow and red, and some white on one side and yellow on the other." The rose fields in the neighborhood of Ghazepoor, India, occupy many hundreds of acres, and at the proper season are very beautiful, the flowers are all used for distillation and making attar. To produce one rupee's weight of attar 20,000 well grown roses are required.

Herodotus records the existence of large double roses in Asia, and also tells us that in a part of Macedonia were the so-called gardens of Midas, in which grew native roses each one having 60 petals, and of a scent surpassing all others. Greek authors say the rose was the Queen of Flowers; they also refer to it as the delight of the gods, the favorite plant of the Muses, and useful in diseases. One of these old poets, writing its praises, says "the gods, in jealousy, to hasten the period of its flowering, watered it with nectar, and soon this immortal flower raised itself majestically upon its thorny stem." Theophrastus tells us it was customary in Greece to set fire to the rose trees, without which precaution they would bear no flowers. Pliny says that the art of forcing consisted in watering the plants with warm water on the appearance of the buds.

Another writer says Egypt cultivated roses largely and sent quantities to Rome annually, before those of the latter country were in bloom. This must have been before Rome became famous for her gardening, as Martial in his epigram, "To Cæsar

* The History of the Rose, continued from the July Horticulturist.

on the winter roses," serves to show that the culture of roses in Rome was carried to such perfection as to make the attempt of foreign competitors subject to ridicule, for he writes, "And thou, O Nile, must now yield to the fogs of Rome, send us thy harvests, and we will send thee roses." The Romans obtained roses and lilies in December by introducing to their plant houses tubes filled with hot water. The Romans whose profuse use of flowers subjected themselves to the reproof of their philosophers, considered the rose as an emblem of festivity. At a feast given by Cleopatra to Mark Antony she caused the rooms to be strewed with rose leaves to a considerable depth and spent a talent in procuring the requisite number. It was also customary for the wealthy to take their meals resting on rose leaves. It is related that Nero spent £20,000 on roses at one feast.

The rose was considered the emblem of prudence. When a rose was placed over the door of a room in which a Roman feast was held, whoever passed beneath it thereby incurred a solemn obligation not to reveal what was seen or heard, hence the term, "Sub Rosa," a term in use at the present time. Shakespeare, in his play, Henry 6th, 1st part 2-4, brings the rose into historical prominence by making a poetic reference to the commencement of the 30 years war in England, 1455-1485, known as the war of the Roses, between the houses of York and Lancaster.

Mr. Wm. Paul, in one of his books, records that in Hungary it is customary with ladies of rank to take bunches of rose buds of choice varieties and go into the fields and woods and bud the wild kinds which they encounter in their rambles, and it is said to be no uncommon thing to meet with the finest varieties blooming in most unfrequented places. Although I have condensed and omitted much I would like to have written, I must quote a short poem by Margaret H. Burnett on the rose:

The Clematis.

The clematis here shown was photographed about the middle of June from a plant two years planted. The name has been lost, but as can be seen it is very early, and though the flowers are not so large as those of Clematis Henryii, i is as purely white, and late in July was making new growth and forming new flowerbuds, and a second crop of flowers was in sight that were only second to those shown in the photograph. There is no more desirable climber for the front of verandahs than the clematis. This vine is in the lovely garden of Mr. A. Alexander of Hamilton.

It is not stately, grand and strong
Like oak, which braves the winter's blast;
It yields no fruit to husbandman
When time of blossoming is past.
'Tis only beautiful; but so,
It fills its God's appointed place
And speaks His watchful love and care
To e'en the humblest of our race.

Some fill their lives with actions grand,
Some fight life's battles brave and true,
Some only quiet beauty show.
And only trifling duties do.
But like the Rose, they fill the place
Appointed by the Almighty one,
And faithful though, but in the least,
They at the end will hear "Well done."

THE VEGETABLE GARDEN DURING AUGUST

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

THE remarks made in regard to weeds, surface stirring the soil, etc., in the July number of The Horticulturist, can be repeated with even more emphasis for the month of August. Not only will many of the annual summer weeds still keep making their appearance, but these as well as many of the perennial or permanent weeds, such as thistles, burdocks, and other similar ones, will also seed and thus spread themselves over the entire garden.

Weeds are too often neglected when crops are nearing maturity or perhaps gathered in. By following them up closely, especially at this ripening season, the next season's crop of weeds can be largely reduced. Weeds allowed to ripen their seeds now, at the natural time of ripening, will form splendid material to ensure a good early crop next season. Root out the weeds, clear them off and burn them on the rubbish pile and destroy the seeds.

Late crops of peas, beans, and even cauliflower and cabbage plants, will be much benefited during hot dry weather if a light mulch an inch or two in depth of half-rotted stable manure is spread between the rows. The mulch should not be placed quite close to the plants; an inch or two of space should be left around the stems. This mulch not only conserves the moisture in the soil, but is also beneficial as a fertilizer.

ONIONS.

Onions are often spoiled for want of timely and proper harvesting. They are very often left much too long before harvesting is commenced. As soon as the bulb has reached maturity the roots should be separated from the soil—especially if showery weather prevails—to prevent the bulbs starting growth again. It is difficult for an inexperienced gardener to know just when to pull onions. As soon as the tops are withered, or only partially withered perhaps, and present a grayish appearance, the roots of the bulb can be removed from the soil.

Another method of finding out when they are fit to harvest is to endeavor to pull the onion from the soil. If it removes readily without much resistance, the bulbs should be pulled. It is necessary, sometimes, during very wet seasons or on very rich land to go over the onion bed and press or bend the tops of the onions over, as they are not inclined sometimes to do this naturally. This bending over should be done a week or two before the bulbs have reached their full size. The process of bending the tops throws the strength of the growth into the bulb and hastens its development and maturity. Light rollers are sometimes used by commercial growers—where onions are grown extensively—for bending the growth, but a stick or long rod answers just as well and is less likely to damage the bulbs. If the weather is not too showery the onions can remain on the ground to dry for a week or two. They should be turned over or moved once or twice during this time to prevent the roots striking again into the ground. If a good open shed is available remove them to it as soon as they are pulled.

A cool, dry, airy shed or barn is the best place to harvest onions in. Spread out thinly on shelves or boards and give them a turn over about once a week; they will keep splendidly in a shed until sharp frost sets in. A dry, cool, airy cellar kept at a temperature as near the freezing point as possible is a good place to winter onions. If the onions are quite dry a few degrees of frost will not hurt them, especially if spread out thinly on shelves.

SPINACH.

A sowing of this useful and wholesome vegetable should be made about the end of August or early in September. Sown about the end of August it will often come in use-

ful to pick during late fall or early winter, when almost all other green vegetables except cabbage are gone. A sowing made about the second week in September will often winter over and produce a supply long before the spring-sown spinach is available for use. This latter point is quite a consideration, as spinach that has wintered over is ready for the table even before that delicious spring vegetable asparagus is available for use.

Spinach can be sown where peas, beans or corn has been taken off. The ground should be well dug and manured before the seed is sown. The common round leaf spinach, or the Viroflay will winter over usually quite as well as the prickly seeded spinach that is generally recommended for autumn sowing.

ASPARAGUS.

Too little of this useful and healthful vegetable is grown by amateur vegetable growers. Coming in as it does in early spring and summer, before most all other vegetables are obtainable, its value cannot be over estimated, to say nothing of its well known medicinal and health-giving properties. If you have only a very limited amount of garden ground, by all means have some asparagus in it. Prepare the ground for it this fall by plowing or digging deeply a piece of the richest part of the garden. Plenty of well rotted stable manure should be worked into the ground. Let the soil lie in rough ridges all winter. In the spring the ground should be forked or dug over, and the seed sown or plants planted as early as the ground can be worked.

A strip of ground about six feet in width and 50 feet in length will allow of two rows being put in, which will in a year or two give a plentiful supply of this succulent vegetable sufficient for a large family. Asparagus grown from seed usually takes three years from sowing before it is fit for table. By planting two-year-old plants good asparagus can be had the first year after planting. Connover's Colossal and Palmetto asparagus are about the two best varieties to plant.

One point in selecting the ground for an asparagus bed must not be lost sight of, and that is to select a piece of soil where the water will drain off readily during winter and early spring, as otherwise the plants may suffer, or at best the asparagus will be much later in the spring than if a piece of well drained soil is selected. When once secured an asparagus bed will last for years if cared for properly.

In sowing seeds of any kind select them from the best specimens possible. The selection and saving of the best types of varieties is equally as important to secure the best results, as is the after culture and care of the plants. Mice and dampness are the two greatest enemies to avoid when saving seed.

Try Mulching Plants with lawn clippings, weeds or manure. It will save watering and keep soil from drying out. This has been my plan for years, although I had my garden laid with water pipes and hydrants. It takes too much time to use a hose or a watering can. If you have no mulch, try stirring soil frequently with hoe. Loosen earth and nature will send up moisture from below.—(N. S. Dunlop, Montreal, Que.

Should Use Caution.—Ginseng is one of the crops about which I would advise growers to exercise caution. They should not rush into the culture of it extensively. There are several who have been attempting it in Ontario, but I am doubtful if it will ever prove as profitable as it has been represented to be, particularly by those growers who have seed and roots to sell to intending planters.—(Prof. H. L. Hutt, Ont. Agri. College, Guelph.

Tomato Growing in South Essex

J. D. FRASER, LEAMINGTON, ONT.

WHILE growers in many parts of Ontario complain of the inconvenience caused by the heavy snowfall, we, in South Essex, suffer from the lack of sufficient snow to protect the roots of our peach trees. Tomato growing has, in consequence, been gone into somewhat extensively, as our soil and climate and freedom from spring frosts along the shore of Lake Erie seem to make up conditions which are perhaps not equaled in Ontario for securing early pickings.

Seed is sown in forcing houses about the last of February or the first of March, and is transplanted a sufficient number of times to secure stalky plants. In preparing the plants for the field they are usually put in six inch spaces. There are different methods used for transferring them to the field. I have found a house constructed so that the glass and cotton can be removed when it becomes necessary to harden off the plants before going to the fields, to be a great saving of labor from the method of changing the plants to other locations. For this purpose folding sash has proved very satisfactory, being easily handled and giving perfect ventilation. Driveways between the plant houses, sufficiently wide to admit a team and wagon are desirable.

With reference to the future outlook of this industry we experience the same difficulty as is found in most lines of fruit growing: namely, insufficient markets. The Florida and Texas growers are pushing their early products into our markets more vigorously each year, and owing to the better shipping facilities and cheaper freight rates enjoyed by them they are able to place their tomatoes on the Winnipeg market at an advantage, as the import duty is not sufficient to offset the extra transport charges. However, with the aid of our railroad commissioners, we hope to do business in the west. There were some very fine fields of the Earliana variety grown here last season. Mr. Harrington had an especially fine piece.

At one time I thought cultivation was indispensable in the orchard, but experience has led me to change this opinion. There are orchards in which cultivation is not desirable.—(Wm. Rickard, M. L. A., Newcastle, Ont.

Nature Study Lessons for the School Teachers.

In connection with the summer school for nature study at the Macdonald Institute, Guelph, every teacher is expected to make and keep a small garden. This photograph was taken recently and shows the teachers at work. The idea in holding these classes is explained by Prof. W. Lochhead in an article on the next page in this issue.

School Gardens for Teachers.

PROF. W. LOCHHEAD, ONT. AGRI. COLLEGE, GUELPH.

THAT school gardens will play a very important part in the new education movement which is being inaugurated in Ontario is the opinion of our foremost educators. Ontario is away behind many of the States and most of the northern countries of Europe in the adoption of school gardens as a part and parcel of her school system. France has more than 28,000 school gardens, and in many of the other European countries state funds are not granted unless a garden is connected with the school. In an article, by me, published in The Canadian Horticulturist for July last year, the value of school gardens is fully set forth.

Believing that the school garden is of great value in school work, the directors of the summer school for nature study at the Macdonald Institute, Guelph, decided to have every teacher in attendance make and keep a small garden. Although the usual season for planting gardens was over, yet it was still possible to get many of the seeds to germinate and grow. With the assistance of Mr. W. Hunt, the college florist, the garden plots were marked out by the teachers themselves, the land prepared and the seeds planted. Talks were given at the plots on the preparation of the soil and the use of manures and fertilizers, on the proper planting of the different seeds, on the use of the garden line, on the best way of caring for the plot after the seeds were planted so as to conserve the moisture, and on the care of garden tools.

Each plot was 12 x 12 feet, with paths 18 inches wide between the plots, and each teacher prepared a sketch plan for himself of the plot, which was discussed and criticized, and much valuable information obtained as to the best arrangement of the rows in the plot. It was pointed out that probably a better sized plot would be 10 x 15, or 10 x 20, in that it could be more readily worked.

Soon after planting heavy rains came. The soil being a heavy clay loam, caked on drying, and there was found the necessity for raking the surface to conserve the moisture and to prevent excessive evaporation. In fact, practical problems came up for solution at every turn. At present writing the seedlings are up nicely and the plots are in good shape and condition. The next problem will be the weeds and the thinning.

Spraying Mixtures Under Test.

A CAREFUL examination was made July 19, 20 and 21 in the Niagara district to ascertain the results of the various experiments made last spring with spraying mixtures for the San Jose scale. The object of the tests was to determine the relative merits of the lime-sulphate wash, the McBain mixture, the sal soda and other combinations. The examination was made by Professors Lochhead and Harcourt, of the Ontario Agricultural College; Inspectors Smith and Hodgetts, of the Provincial Department of Agriculture, and a special committee of the Niagara District Fruit Growers' Association.

The scale began to run a week or more before the date of the examinations, so that the first brood only were showing. All of the remedies were found to have done good work. On unsprayed trees the fruit was in many instances already spotted with the young scale and would soon be rendered unsaleable. Scale-infested trees suffered severely from the winter, and many orchards between St. Catharines and Niagara, that were once considered models, are now completely destroyed. They furnish a terrible example of the destructive work of this scale and of what neglect in its treatment will bring about.

A far more pleasing picture was presented at the farm of Mr. Burgess, near Queenston. This gentleman had sprayed with the lime-sulphur mixture, boiling with steam, and using a gas sprayer. The trees were in splendid condition, under clean cultivation, entirely free from curl-leaf, and bearing a magnificent crop of peaches.

After a careful examination of the various orchards the committee decided that at that date practically no difference could be observed between the trees treated with lime-sulphur and the McBain winter mixture as far as the general condition of the trees was concerned. No decided opinion could be given as to the condition of the scale, as another month must elapse before the natural increase on the sprayed trees will be sufficient to be at all noticeable. Another inspection will be held within a month, when something more definite will be announced.

OUR FRUIT ADVERTISES CANADA

ROBT. HAMILTON, CHIEF FOREIGN FRUIT EXHIBITS, DOM. DEPT. AGRI.

IT is to the credit of Canada that the fruit exhibit at St. Louis excites a great deal of comment there, even from well informed people. Less well-informed people, when they examine our fruit exhibits and find peaches and quinces and grapes of fine size and beauty are frequently heard to say, "Why, I thought Canada had nothing but the common fruits." One of the stray questions put one day was, "What part of Ontario is Canada in?" showing what a degree of ignorance of their neighbors is occasionally met with.

The Canadian fruit is so fine and in such large variety as to astonish the most experienced fruit men. Some of the states of the American union have immense fruits on their tables—fruits of very large size and fine color in few varieties—but Canada had in her opening installation 94 varieties of well preserved apples, many of the kinds such as it was not believed could be kept in good condition for so long a period. In addition to Baldwin, Ben Davis, Canada Red, Northern Spy, Cooper's Market, etc., that astonished no one at that date, were the Fameuse, from Montreal and Eastern Ontario, the McIntosh Red, Wealthy, Scarlet Pippin, St. Lawrence, Baxter, Blenheim Pippin that are generally regarded as fall or early winter apples. When these were seen and sampled visitors were more than astonished.

A REPRESENTATIVE EXHIBIT.

Fruits were displayed from all the provinces, including little Prince Edward Island on the Atlantic to British Columbia on the Pacific ocean. Nova Scotia sent her Bishop Pippins, Nonpareils, Cornish Aromatic, Cox's Orange, Ribstons, Blenheims, and many others; New Brunswick sent Ben Davis, Wealthy, Yellow Bellfleurs, Fameuse, Scott's Red, and several other kinds; Quebec, her Fameuse, St. Lawrence, Wealthy, Canada Red, McIntosh Reds. Ontario was represented by her numberless varieties too large to enumerate. British Columbia sent her brilliant apples, in many fine varieties, that for smoothness and brightness, besides high flavor, were almost unapproachable.

Already there have been a large number of contributors to the Canadian fruit exhibit. A very nice display was gathered by Rev. Mr. Burke, of Alberton, P. E. I., for his province, while a fine collection of typical Nova Scotia apples was sent by Mr. C. R. H. Starr, of Wolfville, N. S.

The collection from the province of Quebec was sent by Mr. Knowlton, of Knowlton, who had many fine kinds from leading

(Continued on page 361.)

The Canadian Horticulturist

The Leading Horticultural Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share in its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Postoffice or Money Express Order, or Registered Letter. Postage stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in Towns and Cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

Congratulations, Mr. MacKinnon! Congratulations, Mr. McNeil! A good chief of the fruit division has left us and a good one has been gained.

THE SAN JOSE SCALE.

The reports published in this issue from a number of the township San Jose scale inspectors in the province show that the situation is still a critical one and that much careful consideration of the position of affairs is called for. The most disappointing feature is the fact that in spite of all that has been done the area affected by the scale is increasing. The most encouraging point lies in the demonstrated fact that spraying, if promptly attended to and properly done, will not only serve to check the ravages of the scale but that in many instances it will effect a cure. The fact that many growers now realize this and that more spraying was done this year than ever before is also cheering.

A serious aspect is presented when it is considered that there are a number of districts where thousands of trees destroyed by the scale are still standing, a danger to all the healthy orchards in the neighborhood. So discouraged are the growers they have refused to continue the fight to save their orchards, and the township councils decline to even appoint local scale inspectors. Has not the heavy loss already sustained been sufficient to show the folly of allowing the scale to spread unchecked? Right here is the danger point. The views of growers as to what they would like to see done are invited.

LET US HEAR FROM YOU.

Many readers of The Horticulturist could add greatly to the value of this magazine by very little effort on their part. Every month editorial representatives of The Horticulturist visit the homes of practical fruit growers in different parts of the province. Seldom is there a man met with who has not got some valuable experience to relate or who cannot hunt up one or more good photographs of his house, orchard or garden. Let us have these photographs. With them send a few lines that will describe their interesting features and add to the value of their publication. If our readers will only do this they will not only take more interest in The Horticulturist themselves but their friends and neighbors likewise.

Every month, also, meetings are held by various of the numerous horticultural societies in the province at which instructive papers are read by members or talks given. Many of these papers deserve presentation to a much wider audience than those present to hear them. Send them in that they may be published in The Horticulturist for the benefit of our several thousand readers. Would it not be a good idea for societies at their meetings to appoint some member to secure and send a full report to The Horticulturist. We ask for and count on receiving the help of all our readers.

START THE BALL ROLLING.

A remark made by Mr. John Pullen, general freight agent of the Grand Trunk Railway, when giving evidence during June before the Railway Commission, is deserving of attention by fruit growers. The statement was made that the Grand Trunk at one time appointed a representative to see what could be done to improve the facilities for handling the fruit carried by the company over its lines. It was decided that if the fruit growers would cooperate and build central storehouses and shipping stations it would be possible for them to keep their fruit in better condition while waiting for cars and for the company to give such organizations better service than could be rendered individual shippers. Attempts made to organize the growers in certain sections had, however, to be abandoned because it was found the growers could not agree among themselves. The truth of this statement was admitted by the growers present.

How long are these conditions to continue? It is true growers in a few districts in the province have organized and that they are reaping the benefits which follow prudent cooperative effort. It is equally true that there are scores of sections in the province where the value of the fruit interests could be greatly enhanced were the growers to set to work to place the handling of their fruit on a better business basis. The tendency on the part of so many

farmers to sit down and wait for the other fellow to act is at the bottom of the whole difficulty. There is nothing to prevent the growers in any section, who are anxious to act, from doing so. Full particulars as to the constitution and by-laws of companies already formed can be readily obtained on request from half a dozen different sources. The Horticulturist will gladly furnish such information to any grower who asks for same. Why should not some of these companies be formed this fall? Don't wait; start the ball rolling now.

There can be no doubt that Canada's fruit exhibits at St. Louis are proving the best advertisement the Dominion is receiving at the big exposition. It has been generally known in the States for a number of years that Canada is an excellent agricultural country, but in spite of this there is a widespread impression that our, to us, unpopular title, "The Lady of the Snows," has been well deserved. The revelation, therefore, that Canada can grow finer fruit than most of the States of the Union comes as a great surprise to our southern cousins, particularly those who are unaware of the fact that a large section of Ontario is farther south than almost all the northern border states, and much farther south than such states as Maine and Vermont. Our fruit exhibits are proving, as none of our other exhibits can, the really moderate nature of the climate in many of the provinces, and in this way are undoubtedly accomplishing much good.

A great many fine papers are read, from time to time, at the women's institute meetings held throughout the province. Through the kindness of Supt. G. A. Patnam, The Horticulturist has secured copies of a number of these addresses which bear directly on the growing of flowers and fruit, fruit receipts, etc., which will be published from time to time in this magazine, and should be of great interest to our readers. The first of these articles appears in this issue.

Owing to its importance at this season, the subject of fruit packing is given considerable prominence in this issue of The Horticulturist. We trust those of our readers not directly interested in this matter will understand the circumstances and realize that a monthly magazine, if it is to be up-to-date, must give particular attention in each issue to the topics of greatest interest during that month.

Send us a card if you are not receiving The Horticulturist regularly. We will attend to it.

Do you like the changes we are making in The Horticulturist? If you do, tell your friends about them.

Well Equipped Steamers.

The attention of fruit growers is called to the Donaldson and Thomson line of steamships, whose dates of sailing are given in the advertisement in the back of this magazine. The ships advertised as having cold storage were fitted up at the request of the government and are of the most modern description, with thoroughly insulated chambers in which a temperature of 25 degrees can be maintained, if desired. These chambers, of which there are four, can be kept at different temperatures to suit the cargo. The steamers advertised with cool air were also fitted out at government request.

Cool air storage is simply a refrigerator in a modified form, and is specially adapted for carrying cheese and early apples. The chambers are insulated and outside ventilation completely cut off, while fresh dry air from the cooler is forced, by use of ducts, to the cooler, where the process of cooling and purifying is again gone through and the air sent again into the chambers. The advantage of this system is that the air is first of all purified, all foreign gases are removed and deterioration prevented. Growers will do well to look into the ventilation and refrigeration of the steamers by which they consign their shipments of fruit.

Our Fruit Advertises Canada.

(Continued from page 359.)

fruit growers in the Eastern Townships, Montreal, etc. A small collection from Eastern Quebec was sent by Mr. Dupuir, of Village des Aulnaies. The Ontario collection was representative of the whole province, while Thos. G. Earle, of Lytton, B. C., made the selection from his province a very fine one.

Manitoba and the Northwest provinces are represented by bottled fruits, which comprise all the leading small fruits, besides many kinds of vegetables, which are capable of being shown in bottles. These were put up at the experimental farms at Brandon and Indian Head.

Canadians may well be proud of the exhibits made by Canada at St. Louis in all the departments. Her forestry, fish and game exhibits are easily first; the same may be said of her agricultural display, while her mineralogical exhibit is second to none, where the whole is beyond praise. The fruit exhibit, however, tells more of Canada's fine and varied climates than all the rest put together.

EDINBURGH BUYER WANTS UNIFORM PACKAGES

JAMES LINDSAY & SON, LIMITED, EDINBURGH, SCOTLAND.

Canadian fruit growers should use a uniform barrel for the shipment of their apples, and we would suggest that it should weigh 168 pounds. Last season barrels of many different sizes and weights were used, a considerable number varying in weight from 140 to 146 pounds. This is a long way below what the standard is expected to be, and when selling it is not easy for us to detect such differences in weight. We notice the barrels are light, but do not at the time realize there is such a disparity in the weight, as there often is. This leads afterwards to no end of trouble, as allowances have to be made our customers.

The packing has greatly improved on account of the interest the Dominion Government has taken in regard to it, but there is still room for improvement with many shippers, as some of them do not seem to realize what is required of them. Last season in several instances we had XX quality branded XXX, and X branded XX. Such branding was carefully noted on this side by the Canadian inspector when his attention was drawn to it.

Cases should also be a uniform weight and should contain 50 pounds net. The government should not allow any other package to be made, as if they do there will be no end of trouble. If attention is given to the weights of packages, such as we suggest, it will certainly tend to stimulate trade.

Certain varieties of pears can be disposed of in our market to good account, but they require careful handling. Growers, when packing them, should use more of the wood shavings to soften any pressure that comes against the fruit. The case should be made of wood, heavy enough to protect the fruit.

A Warning to Fruit Growers.

A warning to fruit growers was given to The Horticulturist recently by Mr. W. H. Dempsey, of Trenton, in regard to the shipping of apples to Great Britain before they are properly matured. "Last August and during the first week in September," said Mr. Dempsey, "I saw buyers shipping Baldwins, Greenings, Ben Davis and Wagner apples. In fact, this has been done for several years. Most of these apples were bought in July, the buyers reserving the right to pick them when they wanted.

"Early in the season, when it looked as if there was going to be a glut of apples on the British markets, the buyers became alarmed and started to pick apples long before they were properly matured, so they could place them in Great Britain before the heavy rush of apples began. McIntosh Reds, one of the choicest dessert apples, were even sent with the Duchess and Astrachans.

These apples were sure to shrivel up and be perfectly worthless by the time they reached the consumer. Picked at an early date, they would not even cook well, as they had not matured. The fruit inspector warned the shippers that they were grading their apples too high. In my opinion the inspectors should have stopped these shipments altogether. If much of this fruit is sent from Ontario it will give our apples a bad reputation."

Canadian Fruit Exhibits.

The department of agriculture is about to send to the London exhibition, which takes place in September, displays of Canadian fruits and food products generally, to which growers and manufacturers are invited to contribute. Mr. Wm. H. Hay, of the department of agriculture, is taking charge of the agricultural and food products display, and Mr. Robt. Hamilton, exhibition branch, department of agriculture, Ottawa, is making the fruit display. Any information required may be obtained by writing either of these gentlmen.

Besides what is being done for the St. Louis exhibition and the exhibits in London, the great Industrial exhibition at Liege, Belgium, which opens in May, 1905, is also being provided for. Growers of fine fruit will do well to keep these exhibitions in mind.

A Poor Method of Selling.

"One of the evils of the present system of handling fruit," said P. J. Carey, Dominion Fruit Inspector, to The Horticulturist recently, "is the method of buying practised by many dealers. In the early spring these buyers go around and make contracts with the farmers for their fruit. They give the farmers to understand that the contract has been closed. The statements they sign seem to be all right on their face, but when they have been tested later it almost invariably turns out that, as far as any protection to the interests of the grower is concerned, they are absolutely worthless.

As the season advances, if the buyer finds the crop is likely to turn out a large one, he very carefully picks only the best fruit on the farm and refuses the rest. The poor fruit is left on the farm on various pretexes from week to week until the season becomes so advanced the fruit is entirely worthless. At this time if the farmer tries to take advantage of the contract signed early in the spring he finds it is all in favor of the buyer.

The best remedy for this condition is for farmers to organize and establish a central packing house. If enough of these houses could be started they would do much to redeem the trade, as the fruit would then be packed in season and handled by competent packers engaged by the growers. There will be no person to come in and absorb a large part of their profit before the fruit reaches the consumer."

A BIG GATHERING OF HORTICULTURISTS ASSURED

The convention of representatives of the horticultural societies of the province, which will be held in Toronto next November at the time of the Provincial Fruit, Flower and Honey Show, promises to be one of the most successful features of that big event. The officers of the Toronto Horticultural Society have already evinced great interest in the gathering and are anxious to show their friends from all over the province how nicely they can take the part of hosts. A most interesting program is being planned. Leading officers of the various horticultural societies of the province will be present, as well as prominent officials from the Dominion Experimental Farm and Provincial Agricultural College. Two or three well known speakers from the United States and the Maritime provinces, who will be in attendance at the annual convention of the Ontario Fruit Growers' Association, will be able to address the meetings of the horticultural society delegates as well. Members of societies are invited to send The Horticulturist suggestions as to subjects they would like to have discussed at the convention.

Already a large portion of the horticultural societies of the province have approved of the proposed convention and agreed to send delegates. This ensures a good attendance. In addition to the reports from horticultural societies previously printed in The Horticulturist, the following societies have been heard from.

There will be plenty of opportunity at the proposed convention to further the interests of local horticultural societies, and the only way to do so is to form a provincial association. Such an association is needed badly in order to have real live up-to-date societies. It will be necessary to call meetings of the local societies for full discussion of desired improvements. The delegates sent will then have to endeavor to bring before the association the views of their members. One good effect of such a provincial association will be its ability to buy premium plants in such large quantities as to make it possible to obtain them at a minimum expense. This would be much better than for each society to purchase individually.—(J. W. Brennan, Grimsby, Ont.

SHOULD MEET WITH APPROVAL.

The advisability of forming a provincial horticultural association is sure to meet with approval. The fruit industry and floriculture are attaining large proportions in many parts of Ontario, and an association where representative men from different parts of the province could meet and exchange views on these and similar subjects would be of much advantage. I will bring the matter before the notice of our society at its next meeting.—(J. E. Johnson, Sec'y Leamington Hort'l Soc.

WANT AN INDEPENDENT ASSOCIATION.

The members of the Woodstock Horticultural Society all approve of the proposed convention at the time of the Provincial Fruit, Flower and Honey Show.—(Jas. S. Scarff, Sec'y.

The directors of the Cobourg Horticultural Society heartily approve of the proposal to form a provincial horticultural association, with the reservation, however, that it shall not be used as a donkey engine to the Ontario Fruit Growers' Association. At the time of its organization our society was induced to affiliate with the O. F. G. A., but two years ago, in common with nearly every other horticultural society in the district, at a meeting to which all our members were specially summoned, it was unanimously resolved to abandon all connection with the O. F. G. A. This emphatic action was taken owing to the treatment received at the hands of those who had succeeded in excluding from the board nearly every horticultural society representative.—(W. J. Snelgrove.

I cannot emphasize too strongly my hearty indorsement of the proposed formation of a Provincial Horticultural Association, which I think might be organized pretty much on the lines of those two good models, the Fruit Growers' Association and the Ontario Poultry Association.—(J. H. Brondson, former Sec'y Guelph Hort'l Soc.

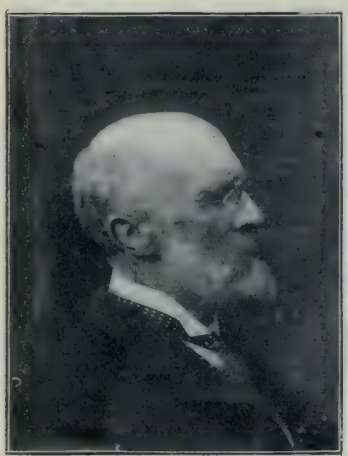
I have been in consultation with our president, Mr. D. McClew, of the Deseronto Horticultural Society, regarding suggestions to form a provincial horticultural association. We believe that our society would favor the formation of an association on purely horticultural lines, as distinct from the fairs, the fruit growers and bee-keepers associations, provided that the membership fee to be paid by each society to the central association is a nominal one, so as not to be a drain on the funds of the societies. We feel assured that this society will favor the sending of a delegate to the meeting. The bringing of horticultural societies into closer touch with each other and the adoption of uniform methods of operation should be the means of producing more effective work and result in lasting benefit to the province.—(R. W. Lloyd, Sec'y.

The Use of Bands.—Does it ever occur to the advocates of spraying for the protection of fruit trees that there is a limit to the amount of preventiveness accomplished by this means—that trees cannot be properly sprayed, even by experts, only at certain periods of the year; that a large proportion of the insects, both flying and climbing, wing and wingless, are continually coming to the ground for moisture, etc.; that if an effective band were placed around the trunk of trees, that same would prevent the pest, once down, from again climbing the tree; that such a band properly applied would not only stop them but would form such a means of protection for them that their cocoons would be laid underneath the band, where they could be readily found and easily destroyed, thus making it a comparatively simple operation to destroy thousands of the eggs of all kinds of insects.—(F. V. Parsons, Toronto, Ont.

WHAT THE HORTICULTURAL SOCIETIES ARE DOING

Had an Enjoyable Outing.

The regular monthly meeting of the Toronto Horticultural Society was held on July 5 in St. George's Hall, being more especially the annual show of hardy roses. A beautiful display was made, Exhibition Park taking first honors, Alexander McHardy and Horticultural Gardens contesting for 2nd place, James Barwell and H. Simmers for third place. Roses were not the only flowers displayed, and for which prizes by points, were offered, as Manton Bros. showed a grand lot of native orchids, delphiniums, etc.; H. Simmers, delphiniums, penstemons, iris and gaillardia; James Barwell, tuberous begonias; R. Barker, white peonies and gaillardia. Singing and music were kindly rendered by Mr. Ernest Tyrrell and Mrs. (Dr.) Shiell. The exhibitors very kindly distributed all the cut flowers to the ladies present.



Mr. Edward Tyrrell.

The energetic and capable chairman of the committee in charge of the floral arrangements for the proposed fruit, flower and honey show, to be held in November, namely Mr. Edward Tyrrell, or Toronto, is here introduced to the readers of The Horticulturist. Mr. Tyrrell, who is an enthusiastic gardener, is probably familiar to many owing to the series of interesting articles he has contributed to The Horticulturist on floral and plant lore. This is the third consecutive year that Mr. Tyrrell has been the president of the Horticultural society and he has held the presidency twice previously In regard to the flower show Mr. Tyrrell says, "We are going to make it the most complete flower show ever held in the province. The gardeners are vieing with each other in their efforts to make it a great success."

Next day, Wednesday, July 6, the members and friends paid a visit to the Ontario Agricultural College, Guelph. Rain commenced falling before 7 o'clock in the morning, but that did not deter some 170, of which a large number were ladies, attending. Dinner was served, in the form of a basket picnic, in the large gymnasium. In the absence of President Creelman the party was shown around the farm by Prof. Hutt, Prof. Zavitz and Mr. Wm. Hunt, and were delighted with what was seen. The weather was fine in the afternoon. The party was under the care of Edward Tyrrell, president; H. R. Frankland, vice-president; George Musson, director, and were back in Toronto by eight o'clock after spending a most delightful day.

Tilsonburg's Good Work Continues.

In the distribution referred to in the May Horticulturist 30 plots of ground were laid out on Grand avenue, and 30 boys, selected from the higher divisions of the public school, were each given five packages of vegetable and flower seeds, also some gladioli (Groff's mixture). All these plots are now being cultivated by the boys. All the seeds and gladioli are well up and looking fine; the plots are clean and in good state of cultivation, most of the boys being enthusiastic and doing their work well under the direction of an experienced instructor. These plots when at their best will be judged, and prizes given in each division or class, as well as a special prize for the best kept plot showing the best results.

As for the 300 or more packages of seeds, these were distributed amongst the girl pupils of the public school, and are grown in their home gardens. A special committee visits each of the home garden plots and reports to a meeting of the Tillsonburg Horticultural society, the result of their inspection, marking each plot according to its degree of excellence or otherwise. When the proper time comes a school children's exhibition of the garden stuff and flowers will be held at the town hall and prizes awarded. The premiums are all money prizes offered by the horticultural society, but these may be supplemented by the liberality of friends. The secretary will visit each home garden as well as help supervise the Grand avenue plots. If possible a flower show will be held at the same time as the school children's exhibition. It is hoped that our endeavor to inculcate in the young a love of flowers and the instruction given them this season will bear fruit in due time.—(W. W. Livingstone, Sec'y Hort'l Soc.

Carry the Exhibits Free.

Our society has been doing very good work this season. Our annual flower show will be held about the last of August. Anything in the form of flowers are eligible for competition, and outsiders as well as members may show. Rigs are hired to convey the plants to and from the building in safety, but no prizes are given and no admission charged. I think it is more advisable to get people to show because they love the work than to have them compete for prizes.—(J. H. Winkler, Sec'y Waterloo Hort'l Soc.

The Town Parks Cared For.

Besides other work, already described in The Horticulturist, the Peterboro Horticultural Society looks after the town parks. We get a grant from the town and one from the county, which are used for the purchase of flowers for the beds, and paying for a caretaker. One park, which was nothing but a weed bed when leased to us three years ago, is now one of the prettiest spots in the town. We are now considering some plan for increasing our member-

ship. There are so many people whom we think ought to give us their support and which we are unable to see personally, that we are going to try sending them a circular letttr.—(K. L. Beal, Sec.

Will Help the Agricultural Society.

The directors of the Elmira Horticultural society have decided to again cooperate with the agricultural society and make a particular effort to get a good display of flowers at the fall show of the agricultural society. A grant of $10 has been made towards the flower prize list of that society, and the list revised and improved. It has also been decided to purchase the usual amount of winter flowering bulbs to be distributed among the members of the horticultural society in the fall.—(C. W. Schierholtz, Sec.

The Garden City Earns Its Name.

The St. Catharines Horticultural Society held the first June flower and fruit show in its history on June 28. To the people of St. Catharines and the neighboring towns it proved our right to the title of "Garden City," and will assuredly give a great impetus in giving the general public a wider and more personal interest in floriculture.

Mr. R. Cameron, the genial and widely known florist of Niagara Falls Park, contributed much to the success of the show by bringing from his home a magnificent collection of over 200 varieties of rare and beautiful flowering plants and shrubs. Many of them can be found nowhere else on the continent. There was, besides, a splendid array of the smaller fruits, showing the high state to which the fruit growers of this district have brought their products. —(S. Richardson, Jr., Sec'y.

The Florists Will Meet.

The Canadian Horticultural Association will hold its 7th annual convention at Ottawa, August 9-10, in Goldsmith's Hall, Sparks street. There will be afternoon and evening sessions both days, and a morning session on the second day. The afternoon meeting on the second day will take the form of an excursion to the Experimental Farm. Reports of the secretary, treasurer, and all committees will be read at the opening session August 9. At the evening session, of the first day, Prof. W. T. Macoun, of the Experimental Farm, will give a lecture on Hardy Perennials, suitable for florists, illustrated by a large display; the choice of place for next meeting will be considered, and a discussion be held on, What is the best fuel for heating greenhouses ?

The florists trade, from a retail standpoint, will be discussed by Mr. A. C. Wilshire, of Montreal, at the morning session of the second day, and Holiday Plants, will be the subject of a paper by Mr. Wm. Gammage, of London. A question box will be opened, and the question, What advantage has iron construction of greenhouses over the old wooden construction ? will be discussed.

The last meeting of the series will be the evening of August 10, when all unfinished business will be completed, officers elected and final committee reports read. On the following day, August 11, will be an all-day session with the Ottawa florists, when interesting places in and around the city will be visited.

Fine Display of Roses.—The Grimsby Horticultural Society were pleasantly entertained at the home of the president, June 29, when a large and splendid exhibition of roses was made a prominent feature of the program. The names of the varieties of the roses were marked on most of the specimens, which added greatly to the interest taken in the display. A musical program was rendered by the Grimsby musical club. Another meeting is planned for August. —(J. W. Brennan, Sec.

Bulbs From Holland.—At a meeting of the directors of the Picton Horticultural Society, held during July, an order was sent to Holland for the bulbs for the fall distribution. The premiums will be six hyacinth bulbs and 19 narcissus bulbs of selected varieties, for each member.

Received Plants.—During May each member of the Port Hope Horticultural society received three boxes of annuals and two boxes of perennials. We have also placed in our high school grounds four boxes each of the following: Verbenas, asters, petunias, phlox drummondii, and three dozen geraniums.—(J. G. Jackson, Sec. Port Hope Hort'l Soc.

At a meeting of the Kingston Horticultural Society, held early in July, it was unanimously decided to hold a show in September at a date to be later determined upon. A number of local florists, who were present, promised hearty cooperation, agreeing to make special exhibits to encourage amateurs. Such exhibits will not be judged for prizes.

The July meeting of the Perth Horticultural Society was one of the most successful ever held by that society. The experiment of holding summer meetings in the gardens and lawns of the different members of the society has proven such a success that it may be looked on as a permanent feature.

The Ottawa Horticultural Society deserves credit for its exhibition of fruit, flowers and vegetables held July 19. The display of horticultural products was a most pleasing and creditable one. The paper read by Mr. James Thorne, on The Experiences of a Beginner in Horticulture, was a fine one, and was presented in a humorous and pleasing manner. Discussions followed on different points of interest to all present.

The Fergus Horticultural Society held its regular exhibition July 22, resulting in the best of its kind ever attempted by this society. There are 62 members in the society.—(J. C. Templin, Sec.

THE FRUIT PRIZE LIST FOR THE BIG SHOW.

The following prize list has been prepared for the fruit sections of the Provincial Fruit, Flower and Honey Show which will be held in Toronto next November. A number of special prizes have yet to be added, including one for the best exhibit of fruit made by any agricultural society in the province. This will give societies a chance to show what they can do. The express charges, one way, on exhibits of fruit will be paid by the Fruit Growers' Association :

APPLES.

A COMMERCIAL DIVISION.

Class 1. Export or foreign market varieties.

Section 1. Barrels ready for shipment. Baldwins, 1st $8, 2nd $6, 3rd $4. Ben Davis, 1st $8; 2nd $6, 3rd $4. Greening, 1st $8, 2nd $6, 3rd $4. King, 1st $8, 2nd $6, 3rd $4. Russet, 1st $8, 2nd $6, 3rd $4. Spy, 1st . 2nd $6, 3rd $4.

Section 2. Boxes ready for shipment (fruit unwrapped). Baldwin, 1st $4, 2nd $3, 3rd $2. Greening, 1st $4, 2nd $3, 3rd $2. King, 1st $4, 2nd $3, 3rd $2. Russett, 1st $4, 2nd $3, 3rd $2. Spy, 1st $4, 2nd $3, 3rd $2.

Section 3. Boxes ready for shipment (fruit wrapped). Fameuse, 1st $4, 2nd $3, 3rd $2. King, 1st $4, 2nd $3, 3rd $2. McIntosh, 1st $4, 2nd $3, 3rd $2. Spy, 1st $4, 2nd $3, 3rd $2. Wealthy, 1st $4, 2nd $3, 3rd $2.

Class 2. Domestic or home market varieties not included in Class 1.

Section 1. Barrels ready for shipment. Alexander, 1st $5, 2nd $3, 3rd $2. Blenheim, 1st $5, 2nd $3, 3rd $2. Gravenstein, 1st $5, 2nd $3, 3rd $2. Hubbardston, 1st $5, 2nd $3, 3rd $2. Yellow Bellefleur, 1st $5, 2nd $3, 3rd $2. Any other variety, correctly named, 1st $5, 2nd $3, 3rd $2.

Section 2. Boxes ready for shipment. Alexander, 1st $3, 2nd $2, 3rd $1. Blenheim, 1st $3, 2nd $2, 3rd $1. Gravenstein, 1st $3, 2nd $2, 3rd $1. Yellow Bellefleur, 1st $3, 2nd $2, 3rd $1. Any other variety, correctly named, $1st 3, 2nd $2, 3rd $1.

All boxes must be Canadian standard size, 10 x 11 x 20, inside measurement.

AMATEUR DIVISION.

Class 1. Dessert varieties. Any 3 varieties, plates of five each, properly named, 1st $3, 2nd $2.50, 3rd $2, 4th $1.50, 5th $1. Any new variety, plate of five, named, 1st $2, 2nd $1. Any seedling, plate of five, 1st $2, 2nd $1.

Class 2. Cooking varieties. Any 3 varieties, plates of five each, properly named, 1st $3, 2nd $2.50, 3rd $2, 4th $1.50, 5th $1. Any new variety, plate of five, named, 1st $2, 2nd $1. Any seedling, plate of five, 1st $2, 2nd $1.

Class 3. Special decorative exhibits. Fruit decoration for dining table.

Class 4. Varieties for identification.

PEARS.

Class 1. Export varieties.

Section 1. Half cases ready for shipment (fruit wrapped). Anjou, 1st $3, 2nd $2, 3rd $1. Bosc, 1st $3, 2nd $2, 3rd $1. Clairgeau, 1st $3, 2nd $2, 3rd $1. Duchess, 1st $3, 2nd $2, 3rd $1. Howell, 1st $3, 2nd $2, 3rd $1. Keiffer, 1st $3, 2nd $2, 3rd $1. Lawrence, 1st $3, 2nd $2, 3rd $1. Louise Bonne, 1st $3, 2nd $2, 3rd $1.

Class 2. Domestic varieties.

Section 1. 11-quart baskets, ready for shipment. Flemish Beauty, 1st $2, 2nd $1.50, 3rd $1. Seckel, 1st $2, 2nd $1.50, 3rd $1. Sheldon, 1st $2, 2nd $1.50, 3rd $1. Winter Nelis. 1st $2, 2nd $1.50, 3rd $1. Any other variety, correctly named, 1st $2, 2nd $1.50, 3rd $1.

GRAPES.

Agawam, best six bunches, correctly named, 1st $2, 2nd $1. Campbell's Early, best six bunches, correctly named, 1st $2, 2nd $1. Concord, best six bunches, correctly named, 1st $2, 2nd $1. Lindley, best six bunches, correctly named, 1st $2, 2nd $1. Niagara, best six bunches, correctly named, 1st $2, 2nd $1. Vergennes, best six bunches, correctly named, 1st $2, 2nd $1. Wilder, best six bunches, correctly named, 1st $2, 2nd $1. Black grapes, best basket, 1st $2, 2nd $1. Red grapes, best basket, 1st $2, 2nd $1. White grapes, best basket, 1st $2, 2nd $1. Black grapes, best crate of small packages for long shipment, 1st $2.50, 2nd $1.50. Red grapes, best crate of small packages for long shipment, 1st $2.50, 2nd $1.50. White grapes, best crate of small packages for long shipment, 1st $2.50, 2nd $1.50.

John H. Dunlop.

Few florists are better known in Canada than Mr. John H. Dunlop, of Toronto. His first start as a florist was made in 1880 with a modest greenhouse, 6x12 feet, erected in his back yard,. To this additions have been made from time to time, until now his greenhouse plant on Lansdowne avenue, near Bloor street, covers four acres of ground, including 36 houses, two violet houses and five asparagus plumosus and smilax houses. Mr. Dunlop is on the general and floral committees connected with the big fruit, flower and honey show, to be held in Toronto next November. He has been a member of the executive committee of the Society American Florists, first secretary and also the president of the Toronto Gardners and Florists' Association, it being largely through his efforts this very useful association was organized, past president and treasurer of the Canadian Horticultural Association, a member of the American Carnation Society, American Rose Society, Toronto Horticultural Society and Industrial Exhibition Association. As a florist his specialty is roses, although carnations, violets and chrysanthemums are largely grown.

ONTARIO'S FRUIT CROP BELOW THE AVERAGE

Reports received by The Horticulturist as late as the 25th of July from correspondents in all parts of the province indicate that fruit crops generally this year in most sections will be considerably below last year's yield, and that the total production of fruit will be on the light side.

Apples do not promise as well as earlier in the season. This crop, including early and late varieties, will not be more than a moderate one. Pears and plums will yield very lightly, as the crop is reported to be a complete failure in many sections, plum orchards particularly having suffered great damage from the severe weather last winter.

As predicted earlier in the season, the peach crop will also be light. As far as Ontario fruit is concerned prices this fall should range high. Reports received by The Horticulturist from outside places indicate that the apple crop in the United States, west of the Alleghany, is not as promising as earlier in the season. The British apple crop will probably be a good one as regards quantity but deficient in quality. Next month The Horticulturist will give an exhaustive report of fruit conditions all over the continent.

A Limited Peach Crop Anticipated.

Prospects for the peach crop are much the same as predicted in the July Horticulturist, when it was announced that the peach crop would probably be a light one. As was the case early in the season, growers continue to vary in their predictions, some placing the crop as a total failure in their sections, while others, in a few cases, expect a full crop. On the whole a light to in some cases a medium yield is anticipated in the principal producing sections, including the Niagara district and along Lake Erie to Essex and Kent counties.

In Wentworth county light to medium returns are looked for, while in Lincoln a medium crop seems to be generally anticipated. One grower reporting from the St. Catharines district states that growers who have peaches should be able to market them all, as the quality and size promise well. Reporting from Welland county, a grower states that his trees are commencing to die owing to the severity of the winter.

In Norfolk the yield is expected to be light, while in Brant correspondents estimate the crop will either be a failure or a very light one. Further west, in Kent, a light to medium return is looked for, as is also the case in Essex. On the whole the crop is going to be a light one.

Early Apples Will Be Light Crop

It becomes evident as the season advances that the crop of early apples will be rather light, taking the province as a whole. As announced in the July issue of The Horticulturist, the early varieties do not appear to be doing as well as the winter apples. In some sections of the province very favorable reports are received, while in others replies indicate that the crop will be rather a light one. Reports received by The Horticulturist in regard to this crop have been very conflicting, making it difficult to give anything like exact estimates, but it seems safe to say that the crop will not be more than a moderate one at the outside.

In the southern section of the province, including the Niagara district and counties bordering on Lake Erie, the crop on the whole will be a medium one. In Lincoln and Welland counties orchards appear to be in fair condition, and growers expect a medium to full crop. Conditions in Brant county do not appear quite as favorable. One grower states that Astracans are a failure, while others believe the yield of early Astracans and Transparents will be light. According to one statement received, the apple crop is just medium, but what there is is of good quality. Essex orchards promise light returns, while in Kent the production will range from a light to a full crop. In Raleigh township one grower writes apples are not more than two-thirds as good as last year, but are free from fungous diseases of any kind. In Harwich township early apples are reported a full crop.

Bordering Lake Huron and Georgian Bay, conditions generally are possibly a little more favorable. In Lambton a medium yield is generally anticipated, while in Huron conditions point to light to moderate returns. Growers in Bruce county vary in their estimates of crop prospects, one placing the Astracans as a very light yield, while others claim there will be a medium to full crop this year of this variety. On the whole, a medium crop seems probable. Conditions in Grey and Simcoe counties are the brightest of any reported, as a full crop is generally looked for.

Along the northern shore of Lake Ontario a moderate crop is promised. In Wentworth, York, Ontario, Durham and Hastings counties prospects are favorable for a satisfactory yield. In other counties trees promise a light to full crop. As stated at the outset, the prospects in the province as a whole do not indicate more than a moderate yield of early apples.

The Fall and Winter Apple Crop.

The reports received during the latter part of July by The Horticulturist indicate that fall and winter apples will not be as heavy a crop this year as last. In the principal producing sections of Ontario the crop, while heavy in some sections, is not likely to be more than a medium one on the whole. There are a number of sections where orchards will yield very lightly, which will tend to reduce the total production.

Growers reporting from the counties bordering on the northern shore of Lake Ontario indicate there will will not be more than a medium yield of the winter or early fall varieties. A large number of reports from Wentworth and York counties show that this condition prevails in these two counties, as only a light to medium crop is looked for. In a number of counties the Spy and Ben Davis varieties are said to promise

a very light yield. The same applies to the Baldwin in a number of districts.

In northern and western sections of the province correspondents report prospects are for a medium to full crop in Simcoe and Grey counties and a light to medium yield in Bruce and Huron counties. Winter apples in Lambton county do not promise a large crop. The Baldwin, Spy and Ben Davis trees indicate a small yield is likely. In the southern portions of the province conditions on the whole are much the same. Reports from correspondents vary greatly, depending on local conditions. Only in rare sections is anything more than a medium crop expected, the majority of replies giving the impression that the total yield will run from very light to medium. Taking the replies received from all over the province, the crop evidently will not be a heavy one.

Plums a Failure in Many Sections.

The predictions made in the June and July issues of The Horticulturist that the yield of plums throughout the province this year would be light, were evidently well founded, judging from the reports received from growers as late as July 25.

Conditions in the southern portions of the province are the most favorable, as in the territory stretching from the Niagara district to Kent county, along the northern shore of Lake Erie, at least a light yield is expected in most of the counties, while some look for a moderate crop. In Brant county plums are a failure in many sections, as is also the case in Kent county. Running north from Kent county to Georgian Bay and in the Lake Ontario districts orchards have been badly injured, report after report reaching The Horticulturist indicating the crop will be a complete failure. So universal are these reports of damage it is evident the total production throughout the province will be quite light.

Pear Orchards Promise Light Yields.

Prospects for the pear crop at this date do not appear as bright as a month ago. The correspondents in the northern part of the province and along Lake Ontario report the crop in their sections will be a very light one. In only a very few counties is a full crop anticipated, while in many the yield promises to be a total failure.

In Wentworth and York counties early and late pears will be a light to medium crop. The Anjou variety in a number of counties is said to be a total failure. Ontario county growers do not anticipate anything more than a light yield. The same remark applies also to most of the other counties bordering Lake Ontario. In the northern sections, including Simcoe and Grey counties, correspondents seem unanimous in the view that the yield will range from complete failure to a light one, while in Bruce, Huron and Lambton counties the anticipations are for more than a light crop. Replies received from the counties in the southern sections of the province go to show nothing more than a moderate crop is expected. The total replies received indicate that the crop this year throughout the province will be a very light one.

Our Monthly Weather Report

The mean temperature for the month of June was average, except in the more northern parts of Ontario, where it was very slightly above average. Temperature was fairly equable throughout the month; there were no periods of extreme heat, but the cool periods were tolerably pronounced. Rainfall was in excess of the average mean amount for June in the central and more northern counties of Ontario and markedly deficient near Lake Erie.

The first half of July was characterized by an excessive rainfall, almost the usual average monthly amount occurring during that period. This was probably more the case in the southern and central counties than in the more northern. The temperature up to the 15th was 1.4 degrees below the average mean at Toronto, and the discrepancy was no doubt general in the province. Sunshine for the same period was also generally deficient. From July 15th until the 20th fine hot weather prevailed, generally abnormally high temperature being recorded in all localities.

Central Canada Fair

—AT—

OTTAWA

SEPTEMBER 16th to 24th

A Splendid Exhibition for the Horticulturist and Agriculturist.

GENEROUS PRIZES OFFERED

Best of Accommodation.

Send for Prize List.

E. McMAHON, Sec'y,

26 Sparks Street, Ottawa

SEPTEMBER

NOW hath the summer reached her golden close,
And, lost amid her cornfields, bright of soul,
Scarcely perceives from her divine repose
How near, how swift the inevitable repose;
Still, still the smiles, though from her careless feet,
The beauty and the fruitful strength are gone,
And through the soft long wandering days goes on,
The silent sere decadence sad and sweet.

ARCHIBALD LAMPMAN.

Round Up of Canadian Florists While Out on a Good Time.

The third day of the convention of the Canadian Horticultural Association, which was held in Ottawa during August, was devoted by the delegates to seeing the sights of the surrounding country. The illustration shows the party gathered on the lawn of Mr. C. Scrim, of Ottawa, where they were royally entertained. Many of Canada's leading florists were members of this party. In the center of the second row from the front is seated the new president, Mr. George D. Robinson, of Montreal; on his left, between two ladies in white, being the past president, Mr. E. Mepsted, of Ottawa. The capable secretary, Mr. A. H. Ewing, of Woodstock, stands in the third row, being the eighth from the left end, while Mr. Herman Simmers, of Toronto, the treasurer, stands on the left end of the back row. A full account of this convention is published in this issue.

The Canadian Horticulturist

SEPTEMBER, 1904

VOLUME XXVII NUMBER 9

THE IRRESPONSIBLE BUYER

ONE of the greatest evils from which the Canadian fruit industry suffers is the irresponsible buyer. Every year Canadian fruit growers are defrauded out of tens of thousands of dollars by sharpers who deliberately and carefully lay their plans to fleece such fruit growers as will trust them with the disposal of their crops. As the season is now approaching when these buyers will begin their operations, a description of their methods may serve as a warning to trusting growers.

The buyers referred to are usually well supplied with money by old country firms through a well known and apparently reliable commission dealer on this side, who often is at the back of the whole scheme. In most cases this dealer never places more than one buyer in each district the same season. The first year one of these buyers operates in a locality he proceeds to make himself "hail fellow well met" with as many growers as possible. A pretense is made by him of buying a large quantity of apples. For those he buys he generally pays cash, thus establishing his reputation with the growers as a man of means and integrity. Were his operations to be investigated, however, it would generally be found that his total purchases did not exceed 4,000 or 5,000 barrels. In some counties these tactics are continued a second year, but this seldom occurs.

As a general rule a buyer of this kind the second year quietly sets to work and contracts for as many barrels of apples as he can secure, 20,000 to 30,000 often being purchased. Operations are conducted so quietly few of the growers have any inkling of the extent of his purchases. If some of the growers are sharp and shrewd the buyer, when necessary, keeps them quiet by paying them 50 to 70 per cent. of the value of their crops and thus avoids suspicion. Whenever possible, however, the growers are put off with one excuse or another, until after their crops have been shipped.

A favorite excuse of the buyer for the delay in the making of payments is that he has just made a heavy payment for a large shipment, or that he is waiting for a remittance from the head office. Once he has secured the fruit and shipped it out of the neighborhood his purpose is accomplished. Later he goes back to the growers with tales of losses, claiming the fruit was injured in transit, that the market was glutted when the fruit arrived, etc. Finally he offers to settle at 20 to 50 cents on the dollar.

Not until then do the growers realize how they have been duped, and unfortunately for them they have no redress. For the first time they awaken to the fact that the buyer, in spite of his great pretenses, has no property or stake in the section by means of which they can obtain any recompense for the value of their crops. What makes it easier for these buyers to conduct their

game, is the fact that growers often do not like to have it known that they were defrauded. Rather than make a fuss and have it noised about that they realized but little for their crops, they accept the buyer's offer of settlement and but little is heard of the matter. The next year these buyers move off into a new district and begin the same game over again. This game is carried on to such an extent that there are few important fruit sections in Canada where there are not some growers who have been defrauded more or less extensively in this way. Within the past few weeks a buyer has been settling with growers in the Niagara district in the manner described. A case which will probably be remembered by many is that of the Ontario buyer who two years ago defrauded fruit growers in the Annapolis valley, Nova Scotia, out of $30,000 to $40,000 worth of fruit. These growers took their case to law but were unable to obtain any satisfaction.

THE REMEDIES.

There are several ways in which the operations of these buyers can be prevented. If growers would cooperate in the packing and marketing of their fruit, danger of loss in this way could be avoided. A cooperative growers' association generally has large quantities of fruit to dispose of, which enables it to deal direct with responsible firms instead of through local buyers. A cooperative association is able to demand cash for every sale made.

Where there are no cooperative associations, growers should only sell to well known local buyers who reside and are well known in the section. One of the great troubles here, however, is the fact that local growers are often unable to offer as high a price as the sharpers, as they know they will have to pay full value for every barrel of apples they purchase. It is due to the fact that the irresponsible buyer generally offers considerably the best price that so many growers are led to deal with him and are finally victimized. It is generally far better for growers to accept a lower price from a man whom they know thoroughly, than to deal with a person of whom they know little or nothing.

Good Results from Caustic Soda

M. G. BRUNER, OLINDA, ONT., LOCAL SAN JOSE SCALE INSPECTOR.

WHILE at Kingsville not long ago I examined an apple orchard affected by the scale, one half of which had been sprayed with caustic soda and the other portion with the lime and sulphur wash. I did not find a live scale on any of the limbs or twigs, although on one tree five or six apples were found on the end of a limb that had a few scale on them.

A number of growers in this section who have used the caustic soda wash speak very highly of it, and believe that it is almost a certain cure for the scale, as it cleans the trees of everything. The trees in the orchard referred to had only been given one treatment, as they were not badly affected. Growers who have tried both the caustic soda and the lime and sulphur wash consider the caustic soda to be the cheapest and that it gives equally as good results.

Fruit growers who have followed the custom of keeping their orchards in sod, and who decide to cultivate them in future, should be careful not to break up the sod in the autumn, especially in those parts of the country where the winters are severe. The roots which have not been disturbed, it may be for years, will be near the surface, and are likely to be injured, and perhaps destroyed altogether by hard frost. It is better to plow in the spring.—(W. T. Macoun, Central Experimental Farm, Ottawa.

FRUIT GROWERS WHO HAVE CO-OPERATED

FRUIT growers living in the vicinity of Forest, in Lambton county, have organized and formed the Forest Fruit Growers' and Forwarding Association. The officers are: D. Johnson, president; D. Simmons, vice-president; A. Lawrie, secretary-treasurer; H. J. Pettypiece, M. P. P.; D. Campbell, H. Hodgson, R. Macken, D. Dunham and R. E. Scott, directors.

It is the intention of the association to build up a business in Northern Ontario, Manitoba and the Northwest Territories. With this object it has been decided to send the secretary, Mr. A. Lawrie, who is an experienced business man, as well as a fruit grower, to visit the leading cities in these districts to solicit orders.

The curling rink in Forest has been rented and will be used as a central packing house for the purpose of grading and packing the fruit of the members. Early in July the association sent out a circular to prospective buyers announcing that it would fill all orders promptly and with high class fruit.

Meetings are held every two weeks during the fruit season, and the members are determined to build up a reputation as honest growers and shippers. All fall apples and pears will be shipped in iced refrigerator cars to the Northwest, and while it is expected that the greater part of the winter apples will also be disposed of there the association has prepared to receive orders from Ontario dealers.

Gathering the Crop in a Western Ontario Orchard.

Apple pickers and packers at work in the orchard of Mr. James Johnson, of Forest, Ont., are here shown. This orchard is on the shore of Lake Huron and produced last year 1800 barrels of apples and 3000 baskets of plums. There are 30 acres under apples and 15 under plums. For 10 years Mr. Johnson has been a firm believer in spraying and the cultivation of orchards. Owing to an over-production of fruit last season, Mr. Johnson put up large quantities of peaches, plums and pears in glass, handsomely labelled, and also considerable quantities of fruit pulp, which during the slack winter season were made into jam and jellies. This season a cooper shop has been built in the orchard, which has enabled Mr. Johnson to manufacture his own barrels at a little more than 30 cents cost, each. In the illustration Mr. Johnson may be seen standing at the extreme left of the picture, while his son, Mr. D. Johnson, president of the Forest Fruit Growers' and Forwarding Association, is on the extreme right.

An interesting description of how the association came to be formed has been furnished The Horticulturist by the president, Mr. D. Johnson. The section where our members live, writes Mr. Johnson, is one of the best and largest fruit growing districts in Ontario. It is situated along the lake shore of the northern part of the county of

Lambton. Thousands of barrels of the choicest apples, as well as many thousand baskets of plums and pears are shipped away every year.

Our fruit growers, however, have for some time felt the need of organization in buying their supplies and handling the output of their orchards. The apple barrel question forced itself upon us last season by the fact that we were forced to pay 50 cents, and in some cases 55 cents, for a poor and very unsatisfactory barrel.

After this experience a number of the leading fruit growers determined to solve the apple barrel question, and had almost perfected arrangements for the establishment of a stave, hoop and heading mill in Forest, to make their supplies out of timber reserved on some of their own farms, when the head of a wealthy syndicate arrived in Forest and completely bought the fruit growers' miller over. The company gave as its reason for this action the excuse that if the undertaking was a success small mills would spring up all over the province and greatly interfere with its business.

Rather than fight a wealthy firm, which was apparently determined not only to oppose them but corner the market, the fruit growers went out in search of barrel material, which they were able to buy early in January at prices that will give them a high class barrel at a little less than 30 cents each in their orchards. Shortly after this Mr. A. E. Sherrington, of Walkerton, delivered two very instructive lectures on the cooperative packing and shipping of fruit, which resulted in the formation of our association. As a result of the success already met with, prospects for the future success of our enterprise seem bright.

MR. A. LAWRIE.

The secretary-treasurer of the Forest Fruit Growers' and Forwarding Association, Mr. A. Lawrie is here shown. As announced in this issue, Mr. Lawrie will this fall represent the association before the trade in the Northwest, where he expects to secure orders for the fruit packed and shipped by the association. He is a practical fruit grower and has had considerable business experience, so is well qualified for the work he has undertaken.

THE SAN JOSE SCALE ACT

DURING August, The Horticulturist wrote to a number of leading fruit growers asking their views in regard to the prevalence of the San Jose Scale in Ontario and enquiring if they would like to see any further action taken to prevent its spread. A number of interesting replies have been received and will be published from time to time in The Horticulturist. The following communication was sent in by Mr. J. Fred. Smith, of Glanford, provincial San Jose Scale inspector:

It is difficult to see in what way the provisions we now have for controlling the San Jose scale could be improved. The responsibility is now where it should be, with the people. If the sentiment of a locality is not strong enough to force the council to appoint an inspector, or if they appoint an inspector and that sentiment is not strong

enough to back him up in enforcing the act, then no other power need undertake to carry out the act. You must have the people with you or you can never make a law a success.

I do not think the scale has spread very much in the last two years. The period during which it spread the most was during 1900 and 1901, when nothing was being done to hold it in check. In 1899 the destruction of the trees was discontinued and everything was then for a year or two in an experimental stage. The people were not then alive to the danger and did very little spraying. Many were skeptical about the scale ever killing a tree. This is not to be wondered at, for during the years that the trees were destroyed everything on which a scale could be found was destroyed and there was no evidence of what the scale would do if left to itself.

The next two years soon convinced those who had scale in their neighborhood of its destructiveness, and then there came a clamor for some remedy, and I do not believe to-day, that in any section where the scale has not practically got everything, that the people are not doing everything in their power to hold it in check. In my neighborhood there are, of course, some careless growers who will not do their work well and do just as little as possible. but still the law is clear and strong, and any person can put the act in force, so that I do not see how the act can be improved.

It has been said that the scale is slowly but surely spreading. This is no doubt true to a certain extent, but it must be remembered that during three years of inaction the scale was spreading fast, and it always spreads farther than any one would expect or look for. It is only when it has had time to develop that growers become aware of its presence, and they then speak of it as if it had only recently arrived, when such is not the case. I have known instances of scale being in an orchard for two or three years, and for some reason or other it did not increase at all, but all at once it became epidemic and spread and multiplied with great rapidity.

The amendment made in 1902 to the San Jose Scale Act was, I think, a great improvement. I have never heard any fault found with the act since the amendment. The only portion of the act which does not seem clear to some municipal councils is sub-section 3 of the amendment, section 4 of the act. Some councils have taken the ground that the department undertakes in that sub-section to pay half of the black knot and yellows inspector's time, but this is not the intention of the clauses. The meaning is that the same person may act in both capacities, that is, could be black knot, yellows and San Jose scale inspector. It might be made clear that it was not intended to pay half the cost of his time for hunting the black knot and yellows.

THE CO-OPERATIVE PACKING OF FRUIT

"THE more I look into this matter of cooperation in the packing of fruit by growers," said Alex. McNeill, chief of the fruit division, a few days ago to The Horticulturist, "the more I realize how many benefits the system has. A large number of varieties of apples depend for their keeping qualities on the time at which they are picked. For this reason there is no one or two periods during the growing season at which it is possible to pick an orchard.

"The professional packer cannot afford to send a gang to an orchard more than twice, and often only once during a season. The result is he is often forced to gather a considerable quantity of fruit that is either over or under ripe. This means that every season a considerable quantity of fruit is

shipped out of Ontario in an improper condition and more or less damage results to the reputation of our Canadian apples.

"The remedy is for the grower to do his own picking and packing. In this way it is possible for him to gather the fruit when it is ready for picking, and if it is stored or shipped immediately much better prices can be realized. The Colvert is an excellent example of an apple that is practically valueless when picked at the wrong time. It is too soft to stand any carelessness in handling or packing, and unless picked in the proper condition and shipped at once, it cannot be sold to advantage. For this reason many individual growers are unable to realize satisfactory prices for their Colverts and other varieties of the same nature.

"This is where the value of cooperation comes in. One of the great sources of profit of the Walkerton Cooperative Association has been the selling of small lots of apples that in former years were allowed to go to waste. By cooperation the Walkerton growers have been able to secure sufficient quantities of these perishable varieties of fruit at one time to enable them to make frequent shipments during the ripening season. In this way they have been able to obtain as high prices for this tender fruit as for their best winter stock.

"Where growers are unable to dispose of their fruit in this way an effort should be made to see the apples are stored in a cool place as quickly as possible after picking. They should not be left in the orchard exposed to the inclemency of the weather. At Walkerton, when the secretary of the cooperative association receives an order for fruit, the members of the association are notified that a shipment will be made at a certain date and are asked to deliver their fruit which is ready for shipment at the shipping point at a certain time. This enables the association to ship the tender varieties of fruit at the proper time, and many of the members now find these varieties among their best paying apples. By cooperating in this way growers will find the Colvert apples a profitable variety because it is hardy and a fairly regular bearer, while the fruit is of good quality."

BOXES OR BARRELS FOR APPLES

REGARDING the packing of apples, in boxes or barrels, I have always used barrels and intend using them this year if they are to be had. Boxes that were used in this section last year by shippers were not made strong enough, the boards being too thin. When pressure was applied the box would bulge out and the fruit would still be slack. In this way the fruit would no doubt land in England in a crushed condition, even if each apple were wrapped in paper.—(W. M. Ellis, Whitby, Ont.

Last year I shipped my fruit in boxes, made of beech timber, having the lengths sawed and planed to suit. I nailed one end solid, and had square bands to fit the outside of the other end, and they were ready to fill. This year I will plane and saw my own, in my own barn, as I have water power. With this kind of a box and large apples, it was easy to get the right fullness at the end of box. The box was placed on end, pressed down with my knees and nailed. When the Fruit Marks Act came into force such packing had to be marked XX. I can sell all I can pack and get more than I can through the packing house. I pack in the orchard.—(J. I. Graham, Grey Co., Ont.

I am going to pack my apples in barrels this season, as I think them the best packages for exporting, unless in sectional boxes, and they are too expensive. Only the very choicest fruit should be packed in boxes. As barrels are getting expensive, and fruit

plentiful, I think only first-class apples should be exported, as poor fruit only tends to glut the market. I think the barrel situation this year will be as serious as last season. I have my barrels all contracted for. A lot of boxes I saw packed and shipped last season gave very unsatisfactory results.—(A. B. Loomis, Orland, Ont.

I purpose exporting a few thousand barrels of apples again this season. Packers will require to exercise more care this year in the selection and packing of their fruit than usual. First, because the quality of the fruit, according to present prospects, will be inferior to that of last year, as there is a greater development of fungus growth, spots already showing distinctly on the apples. Second, owing to the large crop of English and continental apples, it will naturally follow that fruit of the best quality only will meet with ready sale on the British markets. I purpose using the barrel package, having never used the box.—(Subscriber, Ont.

ONE OF CANADA'S LEADING NURSERIES

THERE are some half dozen nurseries in Canada, which are noted owing to the immense volume of their business. One of these is the nurseries of Brown Brothers Company, in Welland county, whose local postoffice is named after the firm, being called Brown's Nurseries. The amount of mail handled through this postoffice may well be taken as some indication of the extensive business done by this firm. It is the largest rural postoffice in Canada, and stands fourth in the Lincoln and Nia-

The Business Corner of the Brown Bros.' Company Nurseries.

The correspondence and office work of this firm, described on this page, is so great it was recently found necessary to erect these handsome offices. The president of the company, Mr. Edward C. Morris, may be seen in the illustration leaning against the side of the steps, holding his hat in his left hand. (From a photograph taken specially for The Horticulturist.)

gara districts for the amount of mail matter handled annually. This gives some idea of the business done by correspondence.

An editorial representative of The Horticulturist, who visited these nurseries recently, was much impressed by what he saw. The handsome residences of Mr. Edward C. Morris, president of the company, and Mr. David Z. Morris, secretary-treasurer, are both located on the home nursery, so that the Messrs. Morris are in touch with all the details of their immense business and look after it exclusively. The extensive and well equipped offices are also situated on the nurseries. This building is 60 x 30 feet, two stories high, the interior being finished in hard wood. It is well lighted from all sides. As the company has not yet reached its limit, everything in the offices is laid out for the future development, which its marked success in recent years leads it to expect. "We packed three times as much stock in 1904 as we did in 1900," said Mr. E. C. Morris. "Some 14 years ago," continued Mr. Morris, "we started in the nursery business here on a comparatively small scale, and to-day there is no firm in Canada shipping more nursery stock in a year."

One advantage of having the main office at the central nurseries lies in the fact that all mail orders can be given prompt and careful attention, and the true condition of the stock available for sale can readily be ascertained. Orders by long distance telephone are also frequently received. So many hands are employed it has been found necessary to erect two boarding houses on the home nursery, one for those engaged in the offices and the other for nursery hands. Both are large, commodious, and fitted with all modern conveniences. Surrounding the offices is an acre and a half of fine lawn, on which shrubs and ornamental trees have been planted. This lawn is to be increased to four acres in the near future, and made a beautiful park. When finished it will certainly present an imposing appearance.

HOW THE STOCK IS WINTERED.

Of several large buildings, the finest of all is the new storage cellar. In the early years of the company's existence a small storage cellar, 12 x 30 feet, sufficed to winter over the stock. In a few years a larger one, 40 x 112 feet, was erected. By 1903 this also fell short of the company's requirements, and a large brick, frost-proof storage cellar, 100 x 160 feet, was built, in which to handle the different kinds of larger nursery stock. After being shown through this fine building, and noting the great precautions that are taken to insure the preservation of the stock in the very best condition, the representative of The Horticulturist was not surprised to hear Mr. Morris remark, "After giving it a thorough trial, we believe we have the best storage building on this continent."

The structure seems to be perfect in every detail. It is absolutely frost proof, and the ventilation is such that the air can be kept clean and pure at all times. A driveway runs through the building, and the entrances are provided with double doors, which may be bolted and made air-tight if necessary. The temperature can be held at any point desired, and its control, as well as that of the atmospheric condition within the walls, is such that trees can be kept there in a most healthy and thrifty state for many months when necessary. This was shown conclusively last year by an

INTERESTING EXPERIMENT

with some nursery stock which was left over. Trees were kept until July, and when examined were found to be in excellent condition for planting out. As a further safeguard against loss of stock, the building is supplied with an efficient water system. If on examination the stock shows any signs of becoming dry, it is an easy matter to water it thoroughly and quickly.

The Greenhouses at the Brown Bros. Company Nurseries.

The old office and old storage cellar of the Brown Bros. Company, Nurserymen Limited, may be seen in the rear of this illustration which has been secured from a photograph taken specially for The Horticulturist. The new, modern greenhouses, described on this page are also shown.

"Direct sunlight," remarked Mr. Morris, "has an ill effect on nursery stock. This, however, is amply guarded against in this building. All the skylights face the north, and are covered with two thicknesses of glass, the outer one being extra heavy ribbed green skylight glass to soften the light."

The small nursery stock, and all imported lines such as seedlings, evergreens, shrubs, etc., are stored in the old building, which is also frost proof. This building holds about 1,000,000 small stocks, while the new one will hold some 500,000 large trees, in addition to which there is room in each building for packing. All packing is done under cover, so that the young trees are not exposed to sun and wind. This modern method has superseded the old one of heeling in outside, and digging as needed, leaving the trees for hours exposed to the sun and wind before the packers get them into the boxes. With the present conveniences and accommodations packing can be commenced in late winter, and shipments made as soon as spring opens, thus giving the purchaser the advantage of an early delivery.

ORNAMENTAL STOCK A SPECIALTY.

Special attention is given to ornamental stock, trees, shrubs, roses, climbing vines, etc., and the laying out of ornamental grounds is a special feature of the business of the Brown Brothers Company. The home farm is almost entirely devoted to ornamental lines, and to aid in securing the best roses, clematis, rubber plants, palms, hardy shrubs, etc., eight greenhouses have been constructed and expert propagators put in charge. The advantage of growing roses in this way is that when grown on their own roots they will not sucker or send up a shoot producing natural, uncomely flowers, and the purchaser is sure of the desired variety. Last year the output was 20,000 clematis and 75,000 roses, besides many thousands of shrubs and vines. "Our undivided attention," said Mr. Morris, "is given to growing and selling nursery stock, and our aim is to handle only the best that can be grown. We have a

force of canvassers soliciting orders which will vary from 1,200 to 1,500 men, working in Canada only."

A row of Montmorency cherry trees, about 350 in all, on either side of a driveway half a mile long, running through the middle of the home farm makes a beautiful sight. This roadway is further beautified by a pyramidal arbor vitæ hedge inside the row of trees.

EXTENSIVE PLANTINGS OF FRUIT TREES.

The Horticulturist representative was driven by Mr. Morris to their various plantings of nursery stock, and was surprised to see how extensive they are. On one road the plantings extend along both sides for a very long distance, and on asking Mr. Morris as to what quantities were set out in these fields, he replied that over 1,200,000 young fruit trees were planted there, and added that on the next road west, and the one still beyond that, were fields containing hundreds of thousands of other young trees ready for the market.

With a total area of over 500 acres devoted exclusively to the growing of nursery stock, every line of nursery product, from the currant bush to the finest of ornamentals is grown. This acreage comprises the home farm of 100 acres, and some eight other farms of different sizes, which are rented for a term of years, thus giving new land for each successive planting.

It requires at least four years to clear a block of nursery stock. The first year is spent in preparing the soil and adding the necessary fertilizers. "We spend hundreds —yes thousands—of dollars annually," said Mr. Morris, "on ordinary stable manure. One remarkably good feature about the soil of this district is that it produces a great abundance of fibrous roots. These, of course, are very essential, as they provide the true life-giving power to the tree. Besides, there is great variety in the soil of this section within a very small radius, so that various kinds of stock can be planted in the soil best suited for their production."

Like other successful tillers of the soil, Mr. Morris believes in thorough cultivation. The cultivators are started in the spring as soon as the land is dry enough, and an effort is made to get over the plantings regularly once a week until August. In that month cultivation is stopped, so that too late growth may not be encouraged, as the new soft growth is easily injured by frost. About $20,000 worth of seed potatoes are also handled each year. Although scale pests have never been detected in this dis-

A Storage House for the Wintering of Nursery Stock.

This illustration gives a good idea of the packing yards and the second storage building erected by the Brown Bros. Company, Nurserymen, Limited, whose place is fully described in this issue. (From a photograph taken specially for The Horticulturist).

trict, all nursery stock is thoroughly fumigated according to law, before leaving the place.

SHIPPING FACILITIES.

For shipping purposes a private siding runs from the T., H. & B. railway, and gives direct connection with the Michigan Central at Welland, and the C. P. R. and G. T. R. at Hamilton. The facilities for shipping will be even better in the near future, as now there are two electric lines projected through the neighborhood.

Visitors in the Niagara district will be repaid for any effort made to visit these nurseries, as they are well worth seeing. Our representative, after viewing all the plant and inspecting the numerous buildings, could not help but express great surprise at their extent and completeness. This firm has certainly built up a very large business in a comparatively short time.

THE PACKING OF FRUIT

FIRST in importance of our Ontario fruits is the apple. This statement might have met flat contradiction a few years ago, when the available markets were glutted and prices low, and many apple orchards were rooted out. Especially were the early apples unsaleable, and in all our horticultural journals the advice was, "Plant no summer or fall apples for export."

All this is changing, for new markets are opening, better facilities for carrying the fruit are being provided, and for our early apples cold storage on cars and steamships is yearly becoming more easily available. During August and the early part of September we have Yellow Transparent, Red Astrachan, Duchess, Alexander and other summer varieties coming in, and the two former at least promise to yield an abundant harvest. These should not be gathered all at one time, as we do with winter apples, because they ripen more unevenly. In our own Astrachan orchard we make at least three pickings of the main crop, in addition to a previous picking of prematures. These latter sell well in the market, put up in 12-quart baskets, because they are the first offered. We have had well colored premature Astrachans sold in Toronto, Ottawa and Montreal at 75 cents a basket, which pays well for the trouble of climbing over the trees for the scattered samples showing red cheeks.

With Astrachans selection of fancy stock

A Building Which Holds 500,000 Trees.

The storage cellar erected last year by the Brown Bros. Company, Nurserymen Limited, which is probably the finest of the kind in Canada, is here shown. This building is fully described in this issue. (From a photograph taken specially for The Horticulturist).

often pays well. We have had 40 and 50 cents a 12-quart basket through a good part of the Astrachan season, which lasts with us about three weeks, by carefully selecting stock of uniform size and high color, and so securing a high class custom.

When, however, the crop is large, as it is this season, no fancy packing can prevent our home markets from being overstocked and prices going very low for early apples. Here is just where iced cars and cold storage on steamers meet our case. For some years we have boxed the main crop of our Astrachans and exported them to Great Britain. We do not say we have done well with every shipment, but on the average our net returns have been quite above the prices obtainable in Ontario; indeed, we might say they were always better providing the storage was perfect from start to finish.

A new market is now opening for early apples, which may be much better than Great Britain, namely our great Northwest. With first class refrigerator cars, such as those built by Mr. Hanrahan for the Ontario Department of Agriculture, we hope to put our whole crop of perhaps 2,000 bushels down in Winnipeg in perfect condition this month. Of course there are few fruit growers who can make up car lots from their private orchards as the writer can, who has over 100 trees in full bearing now about 25 years planted; but in almost every section an association of growers can, by cooperation, make up car lots of early apples, and so get the full benefit of the opportunities now opening. The Alexander is a fine showy apple, closely following Duchess, and we have found it very desirable as a fancy apple for export in cold storage. These and all tender apples should be packed in the bushel box if intended either for Great Britain or for the Northwest.

The Astrachan has been mentioned in particular because of our large experience with that variety, but of the two summer apples the Duchess certainly has the advantage both in appearance and in shipping qualities. It must be gathered promptly, as it colors, however, else the whole crop will be on the ground and so bruised as to be unsaleable.

The Transparent would not deserve mention to Southern Ontario growers along with the two varieties named above, only that it can be put on the market sooner and thus prolong the season. The old Early Harvest is a far better flavored apple, and once was a most profitable early apple, coming in rather in advance of the Astrachan, but we have discarded it on account of its being so very subject to the fungus spot. —W.

Thinning Peach Trees

J. O. DUKE, RUTHVEN, ONT.

IT is best to thin young peach trees which are over loaded, by hand, leaving the fruit ten inches to one foot apart on the branches.

On old trees it is sometimes well to "dehorn," that is, to cut back heavily into the old wood. I have grown the finest kind of Albridges, Wagners and Alexandrias on old trees, by doing this, and those trees that once were too high have well shaped heads, so low that the fruit can be picked from the ground without a ladder.

"I expect to use a few boxes this year for some of my fancy stock. Barrels are so much higher in price than the boxes, I will probably give the boxes a good trial. Three boxes hold about the same as one barrel, and only cost 35 cents, compared with 45 cents for the barrel. There is also a slight difference in freight charges in favor of the boxes."—(W. H. Dempsey, Trenton.

Where the ground is infested with wireworms there is nothing better than a good coat of ordinary soot from soft coal.—(H. Neal, Ingersoll, Ont.

Handsome Effect of a Porch Where Vines Grow Wild.

One of the most attractive trolley rides in the province is the one that can be taken from Hamilton to Vineland, through Winona, Grimsby, etc., through one of the most noted fruit sections in the province. A pleasant feature of this ride is afforded by the many handsome houses which may be seen, almost all of them being owned by fruit growers. The porch of one of these homes is here shown, the residence being that of Mr. Murray Pettit, of Winona, who has about 70 acres of fruit, over 30 being under grapes. The first 1000 vines were planted in the spring of 1872, at which time some of Mr. Pettit's neighbors, who are now large fruit growers themselves, asked him if he thought he would ever be able to market all the grapes. The vines about the porch shown are a combination of jasmine, clematis and Boston ivy, growing wild. During the summer season they present a most attractive appearance.

METHODS OF PACKING PEACHES

IN such fancy fruits as these, which are rather to be classed as a luxury than among the staple articles of diet, more depends on the style of packing than with either the apple or the pear. For ordinary grades of peaches the 11-quart basket is the cheapest and best package, for they must be sold with as little expense as possible; but for peaches 2½ inches and over in diameter, with a colored cheek, the 7-quart basket, or more exactly the 6 2-3 quart basket, is much to be preferred.

Some object to this package because it has the appearance of a half of the 11-quart basket, but sales accounts scarcely justify this objection, for we often find the 7-quart baskets of fancy fruits bringing as much money as the large basket of common stock. Mr. John Brennan, my neighbor, is a great champion of the Alexander peach. He thins it so closely that all his samples are large and fancy; then he packs in a California peach box, with a special label. The package takes two fruits deep, and all are wrapped in tissue paper.

We use a similar box, but it is a little different in size, being half the Ontario apple box. The object of this size was to secure uniformity in size and for packing car lots. Prof. Reynolds, of the O. A. C., is making a carload of mixed fruits for Winnipeg, and he intends using the California peach crate, or else the Georgia six-basket carrier. Either of these will be more satisfactory for distant shipments than the basket, which lacks firmness, and is not popular.—W.

CANADA'S FRUIT STILL TO THE FRONT

T. H. RACE, OF THE CANADIAN COMMISSIONER'S STAFF.

CANADA is still keeping up the standard of her fruit display at St. Louis quite equal to that maintained by any other country showing. This I found recently on returning unexpectedly to the exposition.

The Canadian stock of apples in cold storage is still holding out and turning out well. I was pleased with the natural appearance of the apples still on the plates, some of which had been exposed for a week or more. Among those keeping their quality and appearance are the Spys, Russets, Kings, Canada Reds, and the Salome. The last named, in fact, has done particularly well all through the season and has attracted a good deal of notice. Some took it for a small sized but nicely colored Spy, and they were not unwarranted in doing so. It has kept both its color and its quality well, and if it had a little larger size it would rank among the best of our long keeping winter varieties.

Samples of the Yellow Transparent are somewhat on the small side, but quite up to those shown by other exhibitors. The Duchess is showing up fairly well, and a few samples also of the RedAstrachan and Sweet Bough, but not being as well developed as those shown by states much farther south they are somewhat outclassed. It is noteworthy, however, that all early apples are under size this year, even those that came in fully matured from the south.

In pears, those that have arrived and still continue coming from the Grimsby and St. Catharines districts, including the Lawson, Buerre Gifford and Marguerite, are creditable, both as regards quality and appearance, compared with other exhibits in the pavilion. Clapp's Favorite is not sufficiently matured so far north as Ontario, Michigan and New York to make a good showing with districts much farther south.

In plums Canada is well to the front in comparison. The varieties now in display include Abundance, Ogon, Shero and Red June. There are larger samples of all these varieties showing, but none better in quality. I might state that Abundance is attracting considerable notice from expert judges for its unusually high quality, and all the other varieties shown by Canada have attracted attention for quality.

In peaches Canada is showing three varieties, Early Canada, Early Riders, and Alexander. This display only goes to show here, as yet, that Canada can grow peaches and gives us an opportunity to promise what we can and will do later. Some of the state exhibits are now chiefly peaches, and many of them are exceedingly fine. In the Elberta variety Oklahoma surpasses anything that I have ever seen in that magnificent peach, and I question if Southern Michigan will be able to rival it

Canada seems to be too far away to make a display equal to her capabilities in production either in blackberries or blueberries. Strange to say, the state taking the lead in both of these fruits is Wisconsin, and there is no reason why Canada should not have far outstripped that state in either one, but especially in blueberries. Of course I am not making any high claims for the blueberry as far as quality goes, but it seems to attract attention.

I cannot close this letter without a reference to the magnificent display of Groff's hybrid gladioli, now being made by Mr. Cowel, of Berlin, N. Y. Some of these new strains are so exceedingly beautiful that they are provoking very general admiration. The fact of Groff's name and Canada being associated with them is something to be proud of. One would think that the question, "Can any good thing come from Canada?" had been so fully answered by everything with the name of Canada attached to it down here that it would never more be asked.

Extension Ladders for Apple Picking

A. H. B., GREY COUNTY.

THE grading of apples properly in packing, so as to insure uniformity and to guard the interests of the ultimate customer, the consumer, and the reputation of the grower or packer, is very important, as is the proper packing and conveyance of the fruit to its final destination. There is, however, an earlier question, that of getting the fruit safely, quickly and cheaply from where Nature placed it to the ground level where it is to be graded.

Great difficulty was formerly found in this, particularly with tall old trees. The best fruit is found at the top of the trees (unhappily it is sometimes so with the barrels too), and can only be reached by long ladders, 28, 30 or even 35 feet long. Single piece ladders of such length are inconvenient to take from orchard to orchard, heavy to carry from tree to tree, hard to erect, requiring two to four men, and impossible to place in the middle of the tree where the best apples grow. The result is that these best apples are reached with such trouble they either cost their value, are left on the tree, or shaken down and perhaps ruined. With good extension ladders all these troubles are avoided. The writer has one, and many of his neighbors have been using the Waggoner extension ladders for some time and with great satisfaction. They are made in two sections, which, for carrying, telescope together; a 28-foot ladder, for example, shortening down to 14 feet. This enables it to be conveniently carried on a wagon or from tree to tree. When so shortened down it is very easily erected either on the outside of the tree or in the middle. By means of an endless rope it is extended in a few seconds to any desired height. Thus we have a ladder of almost any length. In taking down, the ladder is reduced in two seconds to half its length, when it is easily taken down and moved. These ladders have a steel wire set into a groove on the back edge of each side rail and drawn very tight. This enables half the weight of timber to be enough and thus the ladders are wonderfully light and easy to handle, a boy of 14 setting up a 24-foot ladder with ease. With my ladders I am confident that I save ten per cent. more of the very best fruit and can pick 30 per cent. more fruit per day than with the old fashioned ladders.

The Size of the Apple Barrel

IN the July Horticulturist several apple growers championed the 30-inch barrel, which is the flour and not the apple barrel. Not one of these gentlemen, probably, have made any trial of the legal Canadian apple barrel, which is made with the 28-inch staves and holds just 96 imperial quarts, or three bushels, grain measure.

Most of the owners of extensive apple orchards about Grimsby, have, for two years past, entirely discarded the flour barrel, and have used the regular apple barrel for all shipments, including thousands of barrels for Great Britain and Germany. The price received for these packages, so far as can be ascertained, was as good as for the flour barrel size, and no complaints were received from the consignee, so that we have concluded that the price of the apples in these wholesale markets is made on the apple barrel size, and that those shipping the flour barrel size are simply giving away the additional measure.

As for our coopers, we do not find them making the least complaint. Their business in the apple section is making apple barrels, and not flour barrels, and they find it just as easy to order 28-inch staves as 30-inch. Altogether our experience is entirely in favor of the lighter barrel, and we are using no other for 1904.—W.

The Growing of Gooseberries

R. B. WHYTE, OTTAWA, ONT.

GOOSEBERRIES are best planted in the fall and should be put out about five feet apart. If you get your plants in the fall, you can either heel them in then and plant in the spring, or you can plant them then.

In propagating they are very easy to layer; but to get the best plants they are better grown from cuttings. I have never succeeded in growing cuttings out of doors, but I can in the greenhouse where there is bottom heat. Last year I had some given me that had come out from Ireland, and they looked as dry as sticks. I sent them to the greenhouse, and six or seven weeks later each was making a nice plant. I put them in the garden and they have made splendid plants; so that it is apparently easy to grow them in the greenhouse.

As to the length of time gooseberries will grow, I believe the record in the old country is 40 years' continuous fruiting. I don't know if that is to be the record in this country or not, but I have had some plants bearing twelve years, which is a pretty good record. As to soil, there is no use trying to grow foreign gooseberries in gravelly or sandy soil. You must have a rich, heavy clay loam, and it must be well drained and not be a stiff clay. The surface must always be kept open and not allowed to get baked or hard.

The chief difficulty with sandy or light soil is that the roots of the plant get overheated and are practically burned. You cannot grow gooseberries down south at all. As to moisture, gooseberries must have a lot of it. If water is scarce, a good substitute is a cut straw mulch. Spread it on the ground two or three inches thick, and it keeps the ground cool and moist.

The question of pruning is simple enough. With your finger and thumb pinch out any shoot which is getting a little stronger than the rest. If you make your bushes too open you let in too much sun, and if you don't make them open enough the berries are difficult to pick and you are more apt to have mildew. It is necessary, now and then, to cut out one of the old branches and let its place be taken by new wood. It is the two-year-old and three-year-old wood that bear the largest and finest berries.

The best time for pruning is early in September. It is a great waste to allow your plants to set fruit buds along all your wood, three-fourths of which you don't want at all. By cutting off all the wood you don't want to bear fruit, you are making the fruit buds strong and vigorous and ready to bear fruit next year. As a proof that this theory is right, I may say we never have any off years.

Preserving Currants

MISS M. U. WATSON, LADY PRINCIPAL MACDONALD INSTITUTE, GUELPH, ONT.

THE common red currant may be preserved in the ordinary household in three ways, viz., by canning, by preserving, and by making into jelly. In the first, the fruit is sterilized by boiling, put into sterilized jars, and the jars made air tight, while the contents are still sterile. Sugar is cooked with the fruit or not according to preference. The essential thing is to sterilize everything and thus prevent any access of air.

In preserving, the fruit is boiled with an equal weight of sugar, long enough to thicken the mixture somewhat, and is usually put away in air tight jars. This, however, is not essential, as the sugar is sufficient to prevent moulding. In jelly making the fruit juice is expressed, combined with its own weight of sugar, and boiled three or twenty minutes.

The secret of jelly making seems to consist in boiling it exactly the right length of time, which can only be determined by experience. Any reliable cook book furnishes satisfactory recipes for all the above. The fruit may also be preserved without sugar by the addition of some preservative, such as salicylic acid, but the result is unwholesome.

Small Fruits in the Orchard

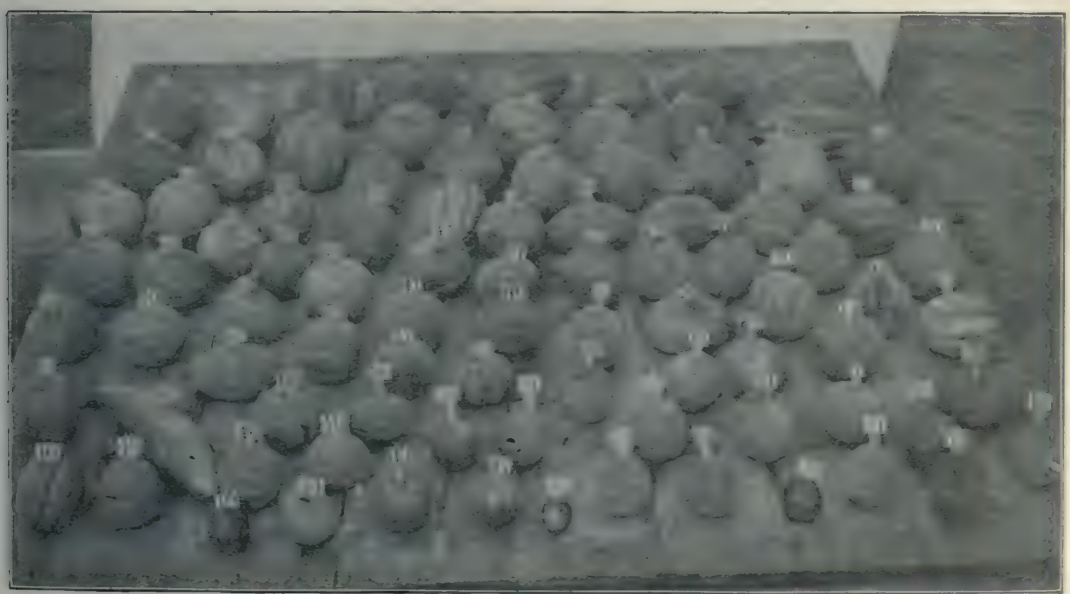
"AN easily grown small fruit crop is the blackberry," said W. H. Gibson, of Newcastle, recently to The Horticulturist. "I have an acre of the Snider variety which last year yielded 7,000 quarts. The year before the yield was nearly as large. These bushes have been bearing for four or five years and were planted about eight years ago. The berries realized five to six cents per quart.

"I obtain women to pick the berries, paying them 1¼ cents per box. A good picker picks 100 boxes in a day. These bushes are growing in a young apple orchard. Owing to the size of some of the bushes I was unable to spray the apple trees last year, and on that account many of the apples were wormy. In that portion of the orchard where I was able to spray not one out of every 100 apples was injured by the worms. This led me to remove one row of bushes this year between every two rows of apple trees to permit of spraying. Blackberries are more profitable to grow in a young orchard than almost any other crop I know.

A Remedy for Aphis

What is an effective spray for aphis in field nurseries? The insect is on the under side of leaves on new growth. Dipping the branches in emulsion is too slow.—(W. C. Archibald & Sons, Wolfville, N. S.

Replying to this question Mr. W. T. Macoun, of the Experimental Farm at Ottawa,



Melons Grown at the Central Experimental Farm.

Although Ottawa is not in a melon growing district it has been necessary for the Central Experimental Farm to test all the varieties of melons on the market in order to find out which will succeed best in districts where the climatic conditions are the same as in Ottawa. About 100 varieties of musk melons have been tested. From a large number a few early ripening varieties of good quality have been found to be worthy of general cultivation. A group of these melons are here shown, including Burpee's Netted Gem, Hackensack, Emerald Gem and Montreal Market. The latter is a fine variety, but a little late unless forced. The farm report concerning these different melons is an interesting one.

writes as follows: "A very effective spray for aphis in field nurseries and on large trees is kerosene emulsion. Once, however, the leaf curls, there is great difficulty in getting any spray to do very satisfactory work. After the leaf curls dipping is as satisfactory a method as any. If the leaves have not curled, a rod and nozzle might be arranged by means of which the spray could be thrown upward from below."

"If kerosene emulsion is properly made and sprayed on the underside of the leaves," writes Mr. H. S. Peart, of the college at Guelph, "it will kill all the aphis. Use a good pump and make the spray as fine as possible. Spraying is very much quicker than dipping."

* Methods of Preserving Fruit

MRS. AMOS SMITH, TROWBRIDGE, ONT.

FRUIT of all, or almost all classes is best in its season. By that, I mean that it is better and more nutritious when it is taken from the trees or bushes in a ripened condition than it is after it has undergone the ordinary process of preservation and been put away for many months.

There can be no doubt but that in some way it develops an acid in the canned condition. so that when used, if it has been canned long, it gives evidences of a change. Rather than carry out the old plan to "eat what we can." we had better "can what we can't eat." Use what we can in its season, and if there is any left, can it.

Fruits like cherries, berries and apples should not be canned until they are thoroughly ripe. Unripened fruit is decidedly injurious to the human system, and the mere process of boiling, sweetening and sealing does not make it more healthful. Canning does not change its nature or improve its quality.

There are various methods of canning, some of which are comparatively recent. A method which gives good results is to fill the sealer with alternate layers of fruit and granulated sugar. This should be done without boiling the fruit either before or after it is in the can. Press the fruit quite firmly in the can or sealer, and seal.

Another process which has given splendid satisfaction is to fill the sealer with raw fruit, berries preferred, and then pour hot syrup upon it, made from granulated sugar. Put on enough syrup to cover the fruit, and when the jar is full it may be sealed. Do not press the fruit in the jar. When opened in winter it has an agreeable naturalness both as regards plumpness and taste. The great object is to preserve the natural taste and fulness of the fruit without a loss of the color. The method of preservation that will keep it nearest what it was when ripe is what is wanted. A friend of mine has tried both these methods with good results.

* Paper prepared for a Woman's Institute meeting.

Artificial Fertilizers

"I USE artificial fertilizers on my small fruits," said Mr. A. W. Peart, of Burlington, to The Horticulturist recently, "because it is difficult to get into the plantations with a wagon without destroying the bushes. Before this year I used muriate of potash on my vineyards at the rate of 200 pounds per acre. This year I am trying an experiment. Sulphate of potash has been used instead, to see if the sulphur in it will not tend to counteract the mildew which is found in some varieties. I scattered it broadcast after plowing and before harrowing.

"On my berries and currants I use nitrate of soda at the rate of 100 pounds per acre, or wood ashes 25 bushels per acre. There is nothing better than good wood ashes.

"My aim is to supply the bushes with what they need most, and to produce a moderate growth. This means firmer and more healthy wood, and the bushes are less subject to fungous diseases."

CANADIAN FLORISTS IN ANNUAL SESSION

THE seventh annual convention of the Canadian Horticultural Association, held in Ottawa, August 9, 10 and 11, brought together a jolly and intelligent body of Canada's leading florists, who managed to spend a most enjoyable and profitable three days. Florists were present from all parts of Ontario and various points in Quebec, while one or two of the more distant provinces were also represented. The convention, in almost every way, was the most successful in the history of the association, as the attendance was representative, the exhibits the most numerous on record, the discussions full of valuable information, and the interest manifest. The great growth in the membership of the association during the last four years was a matter of general congratulation.

THE NEW OFFICERS ELECTED:

The election of officers resulted as follows: President, George A. Robinson, Outremont, Que.; first vice-president, W. Suckling, Truro, N. S.; second vice-president, O. J. Johnson, Kingston, Ont.; treasurer, H. Simmers, Toronto, re-elected; secretary, A. H. Ewing, of Woodstock, Ont., re-elected; executive committee, A. Pinateau, Montreal; J. Walsh, Montreal, and A. Annandale, Toronto.

One of the most important features of the gathering was a discussion on the advisability of petitioning the Dominion Government for a removal of the duty on azaleas and other plants. The matter was referred to in the president's address, and later a committee was appointed to consider the subject. On the presentation of the report of this committee a lengthy discussion on the subject was held, which resulted in the adoption of the following motion: "Whereas, at the last meeting of the Canadian Horticultural Association a resolution was passed asking the government to make certain changes in the existing fiscal tariff; and whereas, the Minister of Finance has stated that there will probably be a general revision of the tariff next year, and has invited an expression of opinion from parties interested, it would therefore appear advisable that this association should give some general expression of opinion upon the subject, and it is therefore resolved that it would be in the interests of the trade and in harmony with the general policy of the country that all articles that can be profitably grown in Canada should be protected by a tariff of not less than 25 per cent., with a reduction of one-third upon importations from Great Britain; that among such articles as can be profitably grown in Canada are palms, ferns, rubber plants, gladiolus, cannas, dahlias and peonies. We also recommend that azalea plants or cuttings of new varieties of plants imported for propagating purposes be admitted free." Carried.

SUBJECTS DISCUSSED.

All the speakers who appeared on the program were present, and their addresses and papers were all of unusual interest. Those who took part were: Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa, who gave a most interesting and valuable paper on Hardy Perennials Desirable for Florists. This lecture was illustrated by a large display of flowers, a portion of which are shown in the cut used in this issue of The Horticulturist. The Florists Trade, from a retail standpoint, was handled quite ably by Mr. A. C. Wilshire, of Montreal, and Holiday Plants by Mr. William Gammage, of London. Wednesday evening Mr. William Findlay, of Brampton, spoke on The Best Way to Grow Violets. One of the best discussions of the convention took place over the question, The Most Satisfactory Fuel for Heating Greenhouses, it being introduced by Mr. C. Scrim, of Ottawa. The question box proved of general interest. Among the subjects dealt with were, What advantage has iron construction of greenhouses over the ordinary

wooden construction? This question was answered by Mr. O. G. Johnson, of Kingston. A portion of some of these papers has been given in this issue, and the remainder will be published in The Horitculturist from time to time.

The meetings were all presided over by President E. Mepsted, of Ottawa. At the opening session an address of welcome was given by Mayor J. A. Ellis, of Ottawa, who referred to the pleasure it gave him to welcome those present to the city. This pleasure, he said, was intensified by the fact that he considered himself an amateur horticulturist, having always taken much delight in the cultivation of flowers. Referring to the exhibit of Groff's seedling gladiolus, made at the convention by Campbell Bros., of Simcoe, Mayor Ellis claimed Mr. Groff is probably the most successful grower of this variety of flowers in the world, and he hoped that his marked success will encourage other Canadian florists to strive to do equally as well. A suitable response was made by Mr. James McKenna, of Montreal, who referred to the enjoyable nature of the convention held in Ottawa four years before. The object of the Canadian Horticultural Association, he claimed, is to encourage a greater interest in flowers and to raise and improve the present standards.

In his annual address President Mepsted referred with pleasure to the marked difference in the membership and influence of the association to-day as compared with what it was when the association met in Ottawa four years ago. While the fight has been a slow and up-hill one, the members have persevered, until now the association is on a sound basis. A strong effort, he thought, should be made to get more gardeners to join. Now that the association has held its annual convention in most of the principal cities, President Mepsted suggested that smaller cities might be visited so that a greater interest in floral matters might be aroused. Referring to the matter of duty on azaleas and carnations, Mr. Mepsted said: "The minister seems to think the matter too small a one to deal with. The time is now ripe for our association to take the matter up energetically. The plant trade has made rapid strides, the only drawback being the want of uniform standards. There is no reason why this cannot be obtained, as there are not so many florists in the leading cities as to make this impossible. There has been no over-production of plants during the last two or three years, as the supply has hardly been equal to the demand. The relations between employer and employe are of a satisfactory nature, but there seems to be a scarcity of plantsmen, which is a decided disadvantage. The employer is somewhat to blame for this, as in all other lines of business; employers develop their

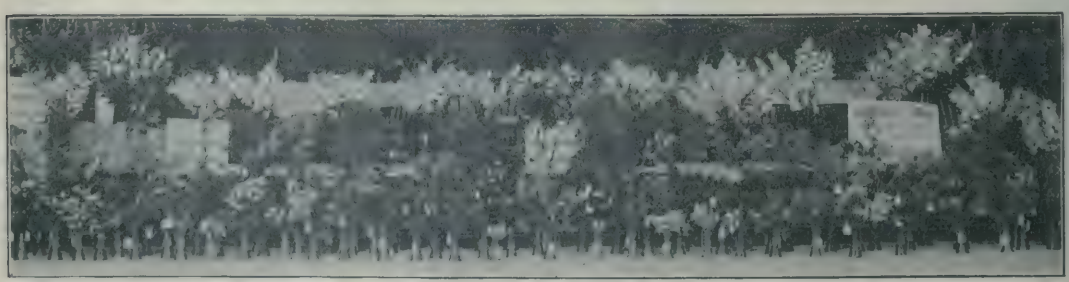


Exhibit of Perennials and Gladiolus at the Florists' Convention.

The flowers here shown were grouped in front of the platform at the Florists' Convention and made a fine display. They include 150 distinct varieties of perennials, including 55 varieties of perennial phlox, shown by Mr. Macoun, of the Central Experimental Farm. The exhibit bore evidence of the wonderful improvement that that has been made in these flowers in recent years.

skilled help from boys. This policy should be adopted by the florists. Boys or quite young men when taken into a business can, by sensible and tactful supervision and teaching by the florist or foreman, soon become as useful in many ways as men, and in a few years will develop into very capable florists. I do not know of any business to-day that furnishes as good a field for employment for good all round men." President Mepsted closed by urging those present to take an active part in the discussions.

THE SECRETARY'S REPORT.

The report of the secretary, Mr. A. H. Ewing, of Woodstock, drew attention to the fact that when the association met in Ottawa in 1899 it only had 22 members, while last year 69 attended the annual meeting.

That the association is in a good financial condition was shown by the report of the treasurer, Mr. H. Simmers, of Toronto. The receipts of the association last year amounted to $248.30, including $138 for membership fees. The previous balance on hand was $90.70, and as the expenses through the year were only $63.50, the association has a balance on hand of $184.80.

SOME SPLENDID EXHIBITS.

One of the best features of the convention was the excellent display of floral exhibits and florists' supplies. These included a great display of hardy perennials made by Mr. W. T. Macoun, of the Experimental Farm at Ottawa, and of Groff's seedling gladiolus by Campbell Brothers, of Simcoe. The Experimental Farm exhibit included 150 distinct varieties of perennials, of which there were 55 varieties of perennial phlox, showing the great improvement that has been made in this flower in recent years. The object of the collection was to show as many as possible of the best perennials which bloom in late summer.

One large table was taken up with the excellent exhibit of J. Gammage & Sons, of London, showing palms, araucarias, rubbers, asparagus plumosus, begonia D'Lorraine, and a number of small plants used in the trade. The palms and asparagus were particularly fine. This firm grows 20,000 palms and 40,000 asparagus plants, and the exhibit showed these plants in all sizes from 1½-inch to 6-inch pots.

Other exhibits included a large display of floral supplies by D. J. Sinclair, of Toronto; flower pots, jars, etc., by the Foster Pottery Co., of Hamilton, Ont.; wire designs by George J. Fisher, of Ottawa, Ont.; florists' holiday boxes by J. C. Wilson & Co., of Montreal; saleable sized palms, assorted ferns, small cyclamen, etc., by Messrs. Grobba and Wandry, of Mimico, Ont.; an excellent assortment of palms, ferns, asparagus plumosus, etc., by J. Gammage & Son, London, Ont.; an especially well grown lot of ferns, from seedlings to plants in six inch pots, by C. Scrim, of Ottawa; small saleable ferns, seedling palms, etc., by Messrs. Hall & Robinson, of Montreal; commercial ferns by Joseph Benouth, of Montreal; ferns in two to ten inch pots, by Graham Brothers, of Ottawa, Ont.; nephislipis Scottic, by John Scott, of Brooklyn, N. Y.; sweet peas, by Frank Brown, of Barrie, Ont., and musk melons by I. J. Gorman, of Montreal.

On Wednesday afternoon the members drove to the Experimental Farm, where a most pleasant afternoon was spent. On Thursday the members devoted the day to visiting the sights and places of interest in and around the city and were entertained at dinner by Mr. C. Scrim, the well known florist of Ottawa. The greenhouses of Messrs. Graham Brothers, Wright and Scrim were among those visited. The three days' convention had a most pleasant closing on Thursday evening, when a banquet was held at the Windsor hotel. When the Toronto contingent was boarding the train for home their Montreal and Ottawa brethren, who were at the station to see

A Portion of the Gladiolus Exhibit at the Florists' Convention.

One of the best features of the recent convention of the Canadian Horticultural Association was the splendid exhibit of flowers and the manner in which the hall was decorated. Probably the best exhibit of any was the one made by Campbell Brothers, of Simcoe, Ont., a portion of which is here shown. It included several hundred of Groff's new hybrid seedling gladiolus, principally of the lighter shades. The great improvement that has taken place in these flowers was well illustrated by the exhibit. Gladiolus are now being classed as one of the best flowers for table decorations from the middle of Jnly to the middle of September. A large quantity of these bulbs are grown in the vicinity of Simcoe from whence about 750,000 were exported last spring to all parts of the world. This exhibit attracted general attention at the convention and was much admired.

them off, exhibited their muscle by bouncing each one in turn and helping them back into the car through the windows. The banquet had nothing to do with this.

Those present at the convention included Messrs. A. C. Wilshire, A. Gibb, R. H. Seabrook, W. C. Hall, W. H. Horobin, J. Harrigan, J. Bennett, T. C. Gorman, J. Henderson, J. McKenna, A. Pinoteau, A. Walker, F. J. McKenna, George Milne, C. Denyncke, A. Ferguson, G. A. Robinson, J. Walsh, G. H. Opton, R. Burrows, P. J. Darcy, of Montreal; Messrs. E. F. Collins, T. Manton, G. Manton, F. H. Miller, A. Jennings, H. G. Dillenwith, E. Grice, D. J. Sinclair, C. Nesbitt, W. Muston, W. J. Lawrence, A. Annandale and R. W. King, Toronto; Messrs. J. A. Wallace, L. Williams, J. Graham, E. Mepsted, C. J. Wright, R. Wright, C. Scrim, W. Kehoe, of Ottawa. Others present were Messrs. I. Wilson, R. C. Winter, of Aylmer; Mr. and Mrs. J. A. Fraser, of Prescott; R. Brooks, of Fergus; F. Cheesman, W. Gammage, of London; J. Campbell, of Simcoe; W. McCann, of Billings Bridge; W. Findlay and W. Downing, of Brampton; Mr. and Mrs. O. G. Johnson, of Kingston; J. E. Killen, of Windsor; W. E. Smith, of Cumming's Bridge, and T. Pewtress, of Pointe Claire, Quebec. It was a splendid convention, and when the florists meet in Montreal next year the Montreal people will have to work hard to surpass it.

A Mistake Occurred.—There is a mistake in my letter in the August issue of The Horticulturist, as Mr. Jacob Moore, who originated the Brighton grape, lived in the township of Brighton just east of Rochester. The vinery in which the Rose Chassellas was growing was owned by the late Joseph Hall, of Rochester, after whom the Joseph Hall Works of Oshawa were named. My partner in the nursery at Rochester, Henry E. Hooker, purchased the original plant of the Brighton for $500.—(Francis Wayland Glen.

I invariably plant a few sweet cherries through my orchard for the birds. They need and like them, and show their appreciation of my kindness by hunting and eating annoying pests.—(John D. Wigle, Kingsville, Ont.

Commercial Bulb Growing

JOHN A. CAMPBELL, SIMCOE, ONT.

HARVESTING gladiolus bulbs begins in September, the young stock being dug first. Different methods are employed, but generally two men with spades dig a row one on each side, and a third man pulls them up, securing as many of the bulblets as possible. The stalks are cut off close to the bulb and the bulbs placed in pots, three or four inches deep. After being allowed a day or more to dry, they are carried to the cellar and placed on racks.

After the bulbs are dry the soil where they grew is run through sieves to secure the small cormels left in the ground after digging. During winter the bulbs are cleaned up. The saleable ones are prepared for filling orders and the young stock sorted for planting. The bulbs are ready for market at two and three years old. A very general mistake made by customers is in judging of the value of a bulb by its size, some even asking for samples to see how large they are.

It might be pointed out, here, that a gladiolus corm is quite different from the bulbs of the hyacinth. In the latter case the flower spike is already formed in the bulb, and upon being placed in growing conditions it soon appears supported very largely by the nourishment stored in the bulb. In the case of the gladiolus the flower spike is not formed for two months after the plant has started to grow, and success depends upon cultural conditions rather than on the size of the bulb.

Canadian Moonseed.—The specimen plant submitted by Mr. D. McKechnie, of Walkerton, is known as the Canadian Moonseed (Menispermum Canadense). It is a graceful hardy climber and can be used with good effect in the home grounds. There are a number of Canadian climbers like the Moonseed which would become very popular if cultivated and known better.—(W. T. Macoun, Central Experimental Farm, Ottawa.

The Mealy Bug on Coleus

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have a coleus which is covered with a small insect that looks somewhat like aphis. The insect seems to work at the joints, and also on the leaves. The stem becomes colorless above where they work. I washed the leaves in water, then smoked it with tobacco, and sprinkled on insect powder, all of which proved useless. I am enclosing a leaf with a specimen of the insect. Can you advise me how to destroy the insect?—(Agnes E. Smillie.

The insect on your coleus plant is what is commonly known as the Mealy Bug, a distant relative of the Aphis. It takes its food in the same way, by sucking the juices of the plant. The best means of getting rid of these insects is to remove them by means of a small brush, usually an old tooth brush can be used for this purpose, and it is well to dip the brush in strong soap suds, which helps to destroy the insects when it comes in contact with their soft bodies. Care should be taken to dislodge them from the axils of the leaves, where they hide themselves beneath a cottony covering filled with wax, which they exude from their bodies.

Care of a Cedar Hedge

W. T. MACOUN, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

I have a cedar hedge, the bottom of which is dying out. The growth is all going to the top. Would it be best to put in young cedars to fill up the gaps or to take three feet off the hedge?—(James Fleming, Port Hope, Ont.

I would suggest a severe heading back, but not back as far as the dead wood. This would induce growth on the lower branches. It would also be advisable to fill up the part with cedars, as this is a quick way to make a hedge look well.

The dying of the bottom of the hedge is usually due to too much shading of the hedge by large trees. If it is possible I would advise giving the hedge more light, providing that shading has been the cause of the trouble.

AMONGST WESTERN FLOWERS

WM. HUNT ONT. AGRI. COLLEGE, GUELPH.

OUR western friends are evidently not so engrossed in the development of their grand country along agricultural and commercial lines, as not to be able to devote some portion of their time in beautifying the surroundings of their homes with plants and flowers. This fact was amply demonstrated by the splendid exhibit made by both professional and amateur plant and flower growers at the recent Dominion exhibition held in the city of Winnipeg.

Although the floral exhibit would not in point of size compare with similar exhibits seen at a few of our large eastern fairs, still, as regards quality and general excellence, it was a most creditable display. In fact, in a few of the classes represented I have never had the pleasure of awarding prizes to plants and flowers of such high class quality. One of the most noticeable exhibits was the specimen fuchsia plants shown in connection with the amateurs' exhibit of window plants. Some of these plants were simply superb, several of them being of such ample proportions that one plant would fill a window of even more than ordinary dimensions. These specimens were in fine condition.

Another feature of the amateur exhibit was the large and gorgeous display of sweet pea blooms. The collection that gained the premier prize in this class surpassed anything I have ever seen exhibited, both in quantity and quality, as well as in the wide and varied range of shades and colors shown, there being upwards of 40 named varieties in this exhibit. Great care had also been taken in the selection and arrangement of the different shades and colors. Several other collections of sweet peas, both in the professional and amateur classes, were also of special merit.

The display of cut flowers of other annuals was also very good, the fine spikes of Ten Week Stocks being particularly noticeable. Pansies and Phlox Drummondii were of good quality, the type of flower in both of these comparing very favorably with the best strains seen at floral exhibits in Ontario.

The exhibit of cut flowers of perennial border plants was not a very large one, but some good specimen blooms of perennial Larkspur, Gaillardia, Coreopsis, Lychnis chalcedonica, Monarda, and many other favorite old border plants were much in evidence amongst the perennials. One variety that was very prominent, not only in the collections, but also in the bouquets, designs, etc., was the beautiful delicate sprays of the Gypsophila paniculata. The graceful panicles of the star-like flowers of this pretty border perennial were used very effectively in relieving the heavy appearance that many border flowers present when arranged for decorative purposes, unless relieved by flowers of a lighter and more delicate texture of growth. The perennial Gypsophila answers splendidly for this purpose, the plant is quite hardy, and although not a showy border plant, its light elegant sprays of white starry blossoms make it invaluable for cut flower decorative purposes. The double flowering Achillea is also very plentiful and succeeds well in the west. Some fine specimens of the two last mentioned perennials were in full bloom in the flower borders surrounding the remains of the now historic gateway of old Fort Garry, on the banks of the Assiniboia river, The small enclosure around this romantic spot is now very nicely laid out with walks and borders, the latter being very tastefully planted with shrubs and perennial plants, the specimens of the Gypsophila and Achillea before mentioned being particularly noticeable.

Two collections of wild flowers common to Manitoba were shown. The exhibit that

The Florists' New President.

At the recent meeting of the Canadian Horticultural Association in Ottawa the members chose for their president for the coming year Mr. George A. Robinson, of Outremont, Que., who is here shown and who is a member of the firm of Hall & Robinson, among the best known florists in Montreal. His first experience in floral matters was received in England, where he secured a thorough practical training in English gardening, later moving to Montreal. For several seasons Mr. Robinson acted as gardener for Mr. Joyce, at Montreal, where he gained the reputation of being one of the most skilful gardeners in Canada. Mr. Robinson has been president of the Montreal Gardeners' and Florists' Club and has won many prizes at Montreal shows for his floral exhibits. An interesting feature of the recent convention was the fact that every past-president of the Association since its organization was in attendance; these gentlemen being Messrs. W. J. McKenna of Montreal, J. H. Gammage of London J. H. Dunlop of Toronto, J. Bennett of Montreal, T. Manton of Toronto, and E. Mepsted of Ottawa, who held the office in the order given.

secured the first prize was made up of about 100 specimens of flowers of plants and shrubs. Many of them were very beautiful, and several species shown were quite new to me, and are very rare in Southern Ontario, if found at all. Nearly all of the varieties of wild flowers shown were correctly named. This exhibit proved quite an attraction to many of the visitors from other provinces.

The plant display was very creditable, the palms, ferns and flowering plants comparing very favorably with eastern exhibits, all classes of greenhouse plants being well represented both in the amateur and professional classes. One display of tuberous rooted begonias, shown by one of the florists of Winnipeg, deserves special mention. This exhibit was not entered for competition.

A very large and comprehensive display of cut flowers of exceptionally good quality, shown by the superintendent of Elmwood Cemetery, comprised a greater variety of flowers than most of the competitive exhibits, and gave the visitor a good idea of what it is possible to do in the way of out door flower culture in the far west. Altogether the exhibit of plants and flowers was very creditable, and it was gratifying to see that floriculture is at least keeping pace with the wonderfully rapid growth that this Chicago of Canada is making in other directions.

FRUIT AND VEGETABLE EXHIBITS.

Possibly a word or two on the fruit and vegetable exhibit may be interesting to readers of The Horticulturist. The fruit exhibit was not a large one. Although the exhibit was of small proportions and consisted wholly of small fruits, principally raspberries and currants, the fruit shown was of very good quality. One plate of Louden raspberries was extra good. The black, red and white currants were also good. There were no apples, pears, or peaches, and but one plate of strawberries. These latter, however, were of very good quality. I did not have the pleasure of judging the fruit display, but was told by the gentleman who made the awards that the fruit display was not representative of what Manitoba could do in small fruits.

The show of domestic preserved fruits, pickles and home made wines demonstrated that the housewives of Manitoba are not a whit behind their Ontario sisters in canning and preserving the comparatively

limited list of fruits common to Manitoba. The exhibit of domestic preserves, etc., was quite a large one, the many different varieties of pickles exhibited being excellent and tastily put up.

The vegetable exhibit was splendid, more especially in point of quality rather than quantity, and although I had only time for a casual inspection of this exhibit, I saw sufficient to convince me that vegetables of first class quality can be grown around Winnipeg. The exhibit contained some fine specimens of almost every kind of vegetable to be seen in Ontario at the same season of the year.

One other splendid exhibit, I cannot omit to mention, and that is the one from the Pacific province. This was in charge of Mr. Palmer, the Commissioner of Fruits for British Columbia, and his assistant, Mr. Brandrith, both practical fruit growers of the western province. This exhibit demonstrated what our friends on the Pacific coast can do in growing small fruits. There was a really grand exhibit of cherries. It is no exaggeration to say that they were in size as large as medium sized crab apples, of a firm fleshy texture and good color, and above all were in excellent condition after their trip over the Rockies. I think I am correct in saying that these cherries were shipped in ordinary ventilated cars. If so, they were in a really fine attractive condition for exhibition or sale, and I feel satisfied that if our Ontario fruit growers wish to compete successfully with the fruit growers of the Pacific coast they will have to put forth every effort to have our fruits from Ontario placed on the western markets in the very best condition so as to obtain a share of the immense market opening up from Winnipeg and west to the Rockies. The display of fruit from British Columbia was a source of great interest, and Mr. Palmer and his equally genial and affable assistant were kept busy answering questions and giving information concerning their excellent exhibit.

FLOWER AND PLANT LORE

EDWARD TYRRELL, TORONTO.

SUNFLOWER: This Peruvian plant has been named Helianthus from the Greek, *Helios,* sun, and *Anthos,* flower, because its corolla bears a resemblance to the great luminary of the day.

Uplift, proud Sunflower, to thy favorite orb,
That disk whereon his brightness loves to dwell;
And as thou seem'st his radiance to absorb,
Proclaim thyself the garden's sentinel.
—Barton.

Phillips, writing on the Sunflower, says that on account of its resemblance to the sun, it was used in the religious ceremonies of the ancient Peruvians, who worshipped the god of day. The virgins who officiated in the Temple of the Sun were crowned with the Helianthus, made of pure gold, and wearing them also on their breasts and carrying them in their hands, which reflecting the rays of their deity by the brilliancy of the metals formed an effect of the most imposing grandeur.

History reminds us of the enormities which the treacherous Spaniards committed on the plains where this plant grows luxuriantly. These infatuated pillagers attempted to enlighten the unfortunate natives, who, in the simplicity of their hearts, poured out their adoration to the sun as the grandest object which their imagination could conceive; so their glaring and favorite flower will ever remain a memento of the folly of those who attempt to inspire the ignorant with an idea of pure religion through the assistance of craft and cruelty.

The sunflower is generally considered

unfit for a small garden. I, however, grow three each year in my little garden, and their handsome leaves and luxuriant growth I continually admire. Gerard (about 1569) describes this plant under the name of "Flower of the Sun," marigold of Peru, "that it grew in his garden in Holborn (London, Eng.) 14 feet high, with flowers 16 inches across." These large flowers have been known to contain more than 2,300 seeds. The seeds are excellent for fattening poultry, and the oil from the seeds makes good salad oil.

SCABIOUS—SCABIOSA.

This flower is found in the Caucasus, Phrygia and south of Europe, and is known as the Pincushion Flower, Blue Bonnet, Blue Buttons, Gypsies Rose, Devil's Bit, and the purple one as the Mournful Widow. It derives its name from Scabies, because the common sort is said to cure this and other cutaneous complaints, and on this account it is fabled that the devil having found the plant in Paradise, and envying the good this herb might do to the human race, bit away a part of the root in order to destroy the plant, but which still continues to flourish with a stumped root, and hence one of the species is called Devil's Bit. The Scabiosa is an old favorite, and of late years has been greatly improved. The plant is 12 to 24 inches high, the flowers are white, pink, scarlet, crimson and maroon, borne on long wiry stems, and excellent for bouquets. It is an attractive flower in the garden.

Ground Ivy in Lawn

PROF H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

The grass on a portion of my lawn is being smothered by a noxious weed, a specimen of which I enclose. It seems impossible to destroy it. Kindly state best means to eradicate the weed.—(J. Gardner, Bayfield, Ont.

The weed is the Ground Ivy *(Nepeta Glechoma)*, one of the creeping species of the mint family. This plant has been used largely as a trailer in the making up of hanging baskets, but when it escapes from such cultivation it becomes a very troublesome weed in the lawn. It has a creeping stem, which works through the grass and strikes root at every joint.

In moist shady places it often crowds out the grass entirely. It has, however, very shallow roots, and the easiest way to get rid of it is to remove a couple of inches of the surface soil in which it is growing so as to entirely remove the rooting portions of the stem and replace with fresh sod or soil. If soil is used instead of sod, a fine surface should be made and lawn grass may be sown at any time, preferably early in the spring.

Pests on Clematis Vines

W. T. MACOUN, CENTRAL EXPER. FARM.

I have two clematis, a Jackmanii and a Henryi, which were attacked last year in a rather peculiar manner. A stem would suddenly wither and die down to the ground, a little while after another would do the same, until the Jackmanii appeared to be completely dead. The Henryi had only two or three stems killed. Both are alive and growing again this year, but a few days ago one stem of the Henryi wilted down as last year. What is the cause? Have looked for insects at roots. Would the trouble be caused by dogs? Other flowers are not affected in the least degree.—(E. Gurney, Hespeler.

The large flowering clematis are frequently affected with a disease caused by a very small nematode worm which works on the roots of plants, causing the whole top to die or part of it at a time. This little worm does most damage to young plants in the greenhouse, and it is supposed that it is brought from the greenhouse outside with the plants.

The best remedy known is to allow the soil in which the plants are growing to freeze to a considerable depth, as it is believed that this will destroy the nematodes. The insects at the roots would not be noticed as they are very small.

EARLY VEGETABLE MARKET GROWING IN IMPORTANCE

"THE growers in Essex county who this year forced vegetables for the early markets obtained the best prices they ever realized. This was the case in spite of the fact that many more raised vegetables in this way this year than ever before. The indications are that there will be a great development in this line in the near future."

These remarks were made to The Horticulturist recently by Mr. W. W. Hillborn, of Leamington, who while in Toronto a few days ago called on Hon. John Dryden to suggest that some experimental work of value might be undertaken in connection with the forcing of early vegetables. "Had it not been for the returns they received from their vegetables," said Mr. Hillborn, "a number of the fruit growers in Essex county, whose orchards were ruined by last winter's severe weather, would have been in a very critical position financially. As it is, a number of them have done so well with their vegetables they are now on their feet again.

"The demand for these vegetables, which are started in the greenhouses along in February or March, and set out under cotton as soon as the weather moderates, has been greater this year than ever before. They have been shipped to points extending from Montreal to Winnipeg, and the demand has not been nearly supplied. Shipments started about the last of May with cucumbers and early cabbage, which were followed by tomatoes and will end with musk melons. By the time the season is over, fully two cars a day will have been shipped from the vicinity of Leamington for some two months.

"The satisfactory prices realized were probably due to the scarcity of fruits. A number of the growers have not succeeded as well as they might have had they owned their own greenhouses. Some of them who undertook this work did not fully understand all the requirements and they had to learn by experience. Those who did not have greenhouses had to depend on others for their plants, with the result that many of them received poor plants, and consequently were unable to obtain thoroughly satisfactory results. The success of the growers, on the whole, however, has been sufficient to leave little doubt that many more will undertake the growing of vegetables in this way next year.

TRADE IS GROWING.

"The trade in Canada seems to have reached the point when a large quantity of early vegetables can be consumed. To fill this demand in the past considerable quantities of vegetables have been imported from the southern states. People are now finding out that our Canadian stock is better than the southern vegetables, and as soon as it is ready for the market it crowds the imported vegetables out. There is no reason apparently why Canadian growers should not supply the greater part of this demand.

"For two years I have shipped vegetables from Leamington to Detroit, and generally secured sufficiently good prices to enable me to obtain a satisfactory profit even after paying a duty of 25 per cent. A Detroit commission merchant who handles my vegetables informed me that our Canadian vegetables were better than those he was securing from the south, and that they realized higher prices. A Montreal dealer has also written me to the same effect. Growers when sending vegetables to the Detroit market have to exercise considerable care to ascertain whether or not the market is glutted, for if so, prices drop materially, no matter how good the quality of the goods.

"Before this trade can attain its full development it will be necessary for the growers to obtain better rates from the railways. This year I made two shipments of tomatoes to Winnipeg by express, there being 327 baskets all told. The charges amounted to $150,

while my profits were only $112 on the lot. This means, of course, that the railroad got more out of the consignment than I did.

A HANDSOME PROFIT.

"An evidence of the profits that can be made from growing vegetables in this way when carefully managed, is afforded by the returns obtained by one grower last year from one and a quarter acres of land. A little cheap greenhouse costing only $30 was erected in which a sufficient number of tomato plants for one and a quarter acres of ground were started. From this piece of land the tomatoes sold realized $660. The grower estimated that his total expense, including the cost of the greenhouse, did not exceed $160, leaving a net profit of $500. Of course, it must not be supposed that every person can make a profit like this.

"There is much to be learned in this work which can only be gained by experience. Unless care is taken, growers can easily lose considerable sums of money in the growing of vegetables instead of making any. As this industry is likely to grow in value, I think it would be well for the Ontario Department of Agriculture to carry on some experiments to ascertain such points as the best method of heating greenhouses, systems of ventilation, etc."

Celery Gowing to Seed

W. T. MACOUN, CENTRAL EXPERIMENTAL FARM.

Will you kindly let me know the cause of celery going to seed? Some asparagus I planted in May did not come up, and I would greatly like to know the probable reason.—(James Fleming, Port Hope, Ont.

It is probable that the cause of the celery going to seed was that the plants were set out too early and certain conditions of weather, when the celery has a very long growing season, such as a check in their growth due partly to dry weather, would induce it to go to seed. Sometimes, also, the cause is due to the seed itself.

It frequently happens that when seed, such as asparagus, is put in as late as May it will not germinate the same year. I would advise that the seed be left until next year if possible. Perhaps, however, the seed may have lost its germinating power before it was planted.

Ginseng Growing.—Let no person be gulled by what is written from time to time in favor of ginseng growing. It cannot be grown with profit; the roots take too long to mature, and the plants require a specially prepared soil which would cost more than the crop would be worth.—(R. Cameron, Niagara Falls, Ont.

Asparagus Bed

"IT takes several years to get an asparagus bed established," said Mr. J. Macnamara, a well known market gardener of Bracondale, Ont., to a representative of The Horticulturist a few days ago. "I sow the seed in a drill in late September or October and let this grow for two seasons. The following spring I transplant to rows three feet apart and four inches apart in the row. I allow this to stand four or five years longer before I consider it sufficiently established to allow me to take off a crop.

"If well cultivated and liberally manured asparagus makes rank growth, and when established lasts for 12 or 15 years, and sometimes 20 years. Each fall I cut off the old tops and clean off the bed. Then I plow the soil on top of the old row to give protection and carry off the water. In the early spring I add a coat of manure.

"When cutting for market select only good stout stems four or six inches in length. They should be cut every second day, or if the weather is warm, oftener. Warm nights are conducive to quick growth."

I have been a reader of The Horticulturist for years and like it well.—(Frank Metcalfe, Blyth, Ont.

Poisoned Bran for Cut Worms

DR. JAMES FLETCHER, CENTRAL EXPERI. FARM.

POISONED bran for cut worms in the vegetable patch has given wonderful results at the Experimental Farm this spring. It should, of course, be applied when the work of cut worms is first noticed, although it is equally successful at any time cut worms are present. We have been using it here for the past few weeks, and it has given every satisfaction.

This remedy has been found most effective against all species of cut worms which attack any kind of plant. Peas, cabbages, melons, cucumbers, etc., have all been kept free from cut worms this season by the poisoned bran.

The method of preparing the mixture is simple; all that is necessary is to moisten the bran with sweetened water so the paris green will adhere and not sink to the bottom. The proportion to use is one pound of paris green to 50 pounds of bran. Even one-half pound of paris green to 50 pounds of bran will be sufficient if the mixture is well stirred, so the poison will be evenly distributed. The mixture is then ready for use; for this it has simply to be scattered in small heaps among the plants to be protected.

Growing Celery

"I HAVE grown celery for years," remarked Mr. J. R. Wood, of Wood & Sons, Ossington avenue, Toronto, to a representative of The Horticulturist, "and find the best results from planting two rows 12 inches apart in a trench, with the trenches 30 inches apart. The plants need to be about nine inches apart in the row. I set the plants out about the first of July, and in about ten weeks they are full grown.

"To ensure good growth the plants must be in good soil and continually hoed and cultivated. I always apply a liberal supply of liquid manure. For bleaching I use a 24-inch board. Celery may be wintered over successfully either in pits or in a root house. The main thing in wintering is plenty of ventilation and sufficient covering to keep out the frost. The Paris Golden Yellow is about the only reliable variety I know of to winter over."

Successful Young Horticulturist.

Good evidence of the opportunities offered young men by the fruit and market vegetable industry in Ontario is afforded by the success that has been attained by Alfred McLachlan, of Leamington. Although only 23 years old, Mr. McLachlan is already a partner in the firm of Hillborn & McLachlan, of Leamington, extensive growers of fruit and early vegetables. Mr. McLachlan, whose parents died when he was a child, started with Mr. Hillborn when only 11 years old. He devotes most of his time to running the vegetable branch of the work, looking after the three greenhouses, and over 2000 yards of cotton frame. Mr. McLachlan also takes charge of the picking of the fruit and harvesting of the crops, while Mr. Hillborn devotes his attention more particularly to the selling end of the business. In an illustration of Mr. Hillborn's orchard, published in the June issue of The Horticulturist, Mr. McLachlan, it was said, was seated on the cultivator. This was an error, as the illustration showed Mr. Hillborn's teamster, not Mr. McLachlan.

For onions or cauliflowers I always put on a liberal supply of salt to guard against maggots. Salt is also a good fertilizer.—(Jas. Conboy, North Dovercourt.

Curing Sweet Corn

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

We are interested in the growing of sweet corn, and have had great difficulty in getting good seed for the past two seasons. We are growing some now to raise our own seed, but would like to get some information as to how the corn should be treated (when ripe), so that it will be perfectly cured. Will we have to hang the ears up in a moderately warm place, or can it be cured satisfactorily by any simpler method?—(Kent Canning Company, Limited.

Considerable care is required in curing sweet corn for seed. The seed should never be allowed to freeze before it has been thoroughly cured, or its germinating qualities will be injured.

Where only a small quantity is required there is no better way than hanging up the ears in a dry, warm, well aired place. Where large quantities are to be cured it may be done by piling the ears in shallow layers on slatted racks, which will allow a free circulation of air, something like hops are dried in hop kilns.

Nitrate of Soda for Tomatoes

PROF. R. HARCOURT, ONT. AGRI. COLLEGE, GUELPH.

Nitrate of soda has been recommended for application to tomato plants soon after setting. Will you kindly tell me what proportion to use per plant?—(Mrs. E. R. Atkinson, Summerland, B. C.

As the tomato plant is somewhat inclined to run to leaf and stem growth, I doubt very much if nitrate of soda would be a very useful fertilizer for it. If the ground is in good condition it does not need much if any special fertilizer, but if the ground is poor there is no doubt that nitrate of soda will tend to give the plants a start and secure a good growth.

On ground in good heart I would recommend the use of a small amount, say 100 to 150 pounds of superphosphate per acre, as likely to give better results than nitrate of soda. The superphosphate should be sown broadcast over the ground.

Vegetable Plots for Poor People

JOHN KEANE, SEC. ASSOCIATED CHARITIES, OTTAWA, ONT.

MUCH good work can be done in cities by securing the use of vacant pieces of land and allowing poor people to use them for raising vegetables. It is of great benefit to the poorer classes if gone into extensively enough so as to warrant engaging a practical gardener to superintend the operations. In Ottawa, during the four years it has been in operation, I think we can pronounce it a success. The chief reason it was given up was because there was no available ground within reasonable distance of the district where the cultivators lived. Besides, it was liable to be sold at any time, and we could run no risk in spending money where we might have to surrender it before obtaining returns. About one-fourth of our cultivators did not attend as they should to the crops when growing, but on the whole, whilst it was satisfactory in its results, it was found impossible to eliminate wholly the improvident, the shiftless and the lazy ones who made a great start at the beginning but did not keep it up. It is here that a special overseer would probably reduce the percentage of the above class considerably.

We sometimes threatened to take away the plots from those who did not properly attend to them, but this drastic proposal could hardly be carried into effect. If we could have obtained suitable ground even this year we would at once have entered on the plan again.

GROWING MELONS.—Good melons can be grown on gravely soil, sandy loam, or clay loam with sandy subsoil Large quantities are sold to large hotels in New York. As soon as the melons are large and netted some unprincipled growers give the stem near the melon a twist to hasten ripening, and by this means destroy the quality.—(R. Brodie, Westmount, Que.

The Canadian Horticulturist

The Leading Horticultural Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance, entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share of its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

THE EARLY VEGETABLE MARKET.

The announcement, in this issue, that the growers in South Essex who forced vegetables for the early markets have secured satisfactory prices is an important one. It indicates that this line of garden work — fast leaving the experimental stage if it has not already done so.

A few growers in the province, not only in South Essex but in the Niagara district as well. have been raising vegetables in this way for a number of years with profit to themselves and satisfaction to their customers. Why should not more do so? For years Canada has imported quantities of vegetables. during the early summer, from the southern states for which, in many cases, high and even fancy prices have been paid. It has now been demonstrated that it is possible to mature these vegetables in Ontario in time to take advantage of these favorable markets. Our Ontario growers, being so much nearer the consuming centers in Canada, should ultimately, by good management, capture the greater part of this trade.

There seems little fear that the demand for these vegetables will be over supplied. The portions of the province suited for this occupation are so restricted the work can never be conducted on a very large scale. The high prices that have been paid in the past may decline. On the other hand, the consumption is certain to increase. which will tend to place the business on a more permanent basis.

A word of warning, just here, may be in order. The fact that a few have done well this year, raising these early vegetables, is no guarantee that any person can do so. Before it will be possible for growers to make a profit at this work they must secure suitable locations, which in itself is a difficult matter, and have a thorough knowledge of the business. A slight lack of experience or a little carelessness on the part of a grower early in the season may result in the loss of his entire crop. Any rush into this line of work is certain to mean disaster to many.

THE FRUIT MARKS ACT.

It is announced that in future the Fruit Marks Act is to be more rigidly enforced. If a few packages in a shipment of fruit are found to be improperly graded the whole shipment is to be thoroughly inspected. The time is ripe for the taking of such a step. The act has now been long enough in force to leave no room for any excuse on the part of shippers that they are not acquainted with its provisions.

It seems there are a number of packers who still resort to dishonest methods in the packing of their fruit in the hope that at the most only a small part of their shipments will be detained by the inspectors. A few sharp lessons to these parties should be a benefit to the whole trade. The numerous testimonials from British commission dealers that have been published in The Horticulturist recently concerning the benefits that have resulted from this act, indicate that a still better enforcement of its provisions, if not too rigid, will not be likely to cause much damage to our fruit trade.

The season for buying bulbs is now near, and horticultural societies will as usual be writing to different firms for quotations on the different varieties. Why not patronize our Canadian firms, and more especially those who use The Canadian Horticulturist as an advertising medium? Too many secretaries place their orders with the man who quotes the lowest price, be he a Canadian or one of our cousins from across the line. Canadian purchasers often do not show enough loyalty to Canadian sellers. If the best quality is wanted a fair price must be paid, and Canadian seedsmen will supply bulbs at a reasonable price. Place your orders with those who advertise in this paper and let them know you saw their advertisement in our columns. They all sell goods that are genuine.

Some complaint is being made, and apparently with more or less reason, in regard to the change made this year in the time of placing the exhibits of cut flowers in the floral department of the Industrial Exhibition. . In former years the time for placing these flowers has been 11 a. m. Tuesday. This has been changed to 11 a. m. Monday. The change seems likely to make it difficult for outside exhibitors to compete. If growers living at a

distance from Toronto are going to exhibit it will be necessary for most of them to get their material ready and be in Toronto on the Sabbath. The present arrangement gives Toronto exhibitors an advantage. Can not the time set for the placing of exhibits by outsiders be extended ?

The Southern Pacific Railway Company, of California, is evidently a good friend of the fruit growers of that state, judging by a little booklet, entitled "Eat California Fruit," recently placed in circulation by the company. It is neatly gotten up and should prove a splendid advertisement of the fruit of that state. After devoting some pages to describing "Why California Fruits Are Best," several interesting chapters tell how the fruits can be prepared for the table, and give numerous recipes for their use. In view of the great name our Canadian fruit is gaining at the St. Louis Exposition is there not a good opening for missionary work of this nature on the part of our Canadian railways ? However, if they will only reduce their freight rates we won't press this point.

We hope the readers of The Horticulturist are noticing the marked improvement that is taking place in our advertising columns. The advertisements in the August issue of The Horticulturist were the heaviest and most valuable in the history of the magazine, and this month the record is again broken. If the advertisements continue to increase, as we expect they will, more pages will soon have to be added, and our readers will receive their share of the benefit. Help us to make further improvements by patronizing our advertisers and telling them you saw their advertisement in The Horticulturist. They are all reliable men and will treat you honorably.

One branch of the fruit, flower and honey show which cannot be made too prominent is the educational features. The show will fall short of its objects if it does not lead to a greater demand for all three of the principal products it is being held to advertise, viz., fruit, flowers and honey. This is particularly true of the fruit exhibits. Printed matter naming and describing each variety of fruit, with its season and special qualities, will need to be distributed freely. Once consumers can learn what varieties of fruit will best suit their purposes a marked increase in the demand may be looked for.

The suggestion that has been made that the Ontario government should undertake a few experiments in South Essex in the raising of vegetables for the early markets seems a good one. A more or less marked increase in the extent of this business may be expected. Experiments at this period, to ascertain the best kind of greenhouses and cotton frames, the most satisfactory systems of heating and ventilation. etc., may be of great value to many in the near future.

The members of the Canadian Horticultural Association are to be congratulated on the success of their recent annual convention in Ottawa. Such gatherings are a benefit not only to those who attend but to the trade at large. The excellent financial statement presented speaks well for the management in the past. May the association grow and prosper.

Fruit Conditions in the United States

Plums in the United States are not half a crop ; pears about two-thirds, both in fine condition at present. Michigan has one-third of a crop of peaches, Delaware half a crop, Maryland and Tennessee one-half, and New York two-thirds of a full crop. Apples are everywhere. The United States, taken as a whole, will have one-fifth more than in 1903, California a lighter crop, Missouri and Kansas, while having double the yield of 1903, still will not have one-quarter of a supposed full crop. New England has more than last season, while New York has as many. Low prices must prevail on apples.—(A. Warren Patch, Sec'y National League of Commission Merchants, Boston, Mass.

Our apple prospects in the States, taken as a whole, are for a full average crop, with a larger production than in 1903. Judged from present indications the quality of the late fall and winter fruit will be fine. Summer apples are abundant, of an excellent grade, and prices low. The pear crop is fair, with early varieties plentiful and low prices. The southern peach belt is finishing up by far the largest peach crop they have ever grown, while in northern sections the crop will be less than an average. Plums are in large supply, and low prices prevail, with a prospect for improvement on late varieties.—(C. H. Weaver, Pres. International Apple Shippers' Ass'n.

Liberal Prizes at Ottawa Exhibition

The Central Canada Fair, at Ottawa, will be held September 16 to 24 this year, immediately after the London exhibition. This, as is pretty generally known, is a high class exhibition and is worthy of patronage. The agricultural and horticultural departments are well looked after, every facility being afforded exhibits. The building for the displays in these lines is a splendid one and the prizes are most liberal. The premiums in the agricultural department include a gold medal or $20 as a special prize, and there are also competitions for special prizes by the Massey-Harris Co.

In the horticultural department there are also special prizes of gold medals. The directors are re-arranging the horticultural building with a view of making the display the best in the exhibition's history. Exhibitors at the Ottawa show have always been well pleased with their treatment, so that those who have not been there are assured of satisfaction if they attend. The secretary, Mr. E. McMahon, will forward a prize list and any other information desired upon application.

Canadian Fruit in England

"While in England last winter," said Mr. M. E. Kyle, of Oakville, Ont., to The Horticulturist a few days ago, "I found the Fruit Marks Act had done a great deal to improve the standing of Canadian fruit on the British markets, although even yet some of the fruit shipped from Canada is not what it should be. Unless shipments of inferior fruit can be stopped, our trade will continue to receive more or less injury.

"While in Bath I entered a grocery store, where I saw several barrels of very inferior Baldwins. I asked the proprietor where he had obtained such rubbish, and he informed me, much to my surprise, that they were Canadian apples which he had purchased at auction in Bristol. He had, he claimed, lost at least $50 through his purchase of that one lot of apples. I was so struck by this information that I sent to Bristol and had one of the Dominion inspectors come to Bath to inspect the apples. Unfortunately the grocer had lost the heads of the barrels and it was impossible to trace the shipment.

"On being asked if he did not think that United States growers might be taking advantage of the good reputation of Canadian apples to send their apples under a Canadian label, as has been done with shipments of United States cheese, Mr. Kyle replied that he could not say definitely, although he rather doubted it. "American barrels," he said, "are of a different shape, being smaller and having a different hoop from the Canadian barrels, although it is quite possible some of their shippers may have obtained barrels similar to those used in Canada.

"A very large trade," Mr. Kyle continued, "can be done by Ontario shippers who once become known as reliable packers. One large importer expressed his willingness to me to handle 500 to 800 barrels of Canadian apples weekly, if the quality of the shipments could be guaranteed. I have seen Spys, Baldwins and Russets retail for 8 to 12 cents per pound. Outside a special demand for fancy large apples in the large cities from November to May, small apples seem to be generally preferred. As apples in England are generally retailed by the pound, the buyers like to obtain three or more for a pound instead of one or two large ones. Apples which weigh three-quarters of a pound are not liked for this reason."

"Ontario growers who have fine large apples should be able to obtain handsome prices for them if they would ship them in boxes and wrap them with paper. While it costs more to grade uniformly and wrap fruit in this way, the increase in the prices obtained should much more than pay for the trouble and additional expense incurred. Leading buyers told me that if our growers would take the same trouble in packing and grading their fruit as is taken by the California growers, much better prices could be realized. There is hardly a city of any size in Great Britain in which there are not dealers who would be glad to handle fancy fruit from our Ontario shippers, especially if shipped direct, but if our men are going to open up this trade they will have to make a search for these dealers. Once an Ontario shipper has found such men to handle his fruit it should be possible for him to work up a very fine trade."

Shipping Apples to the Old Country

"The great bulk of my apples," said William Rickard, M. L. A., of Newcastle, to The Horticulturist recently, "go to the old country, being shipped to Glasgow, Liverpool, London and Manchester. Up to the present I have preferred the barrel package. The box has not yet demonstrated its usefulness for the shipment of the bulk of the crop. It has, so far, been devoted to the fancy apple trade, but may yet, however, grow into favor and become more generally used. Even this year I think the standard barrel will be used for the bulk of the crop.

"The Montreal, Liverpool and Glasgow dealers do not want boxes, although some Ontario shippers who have forwarded all their apples in boxes have done well. It is a question in my mind whether it would be possible for Liverpool dealers to handle 150,000 barrels of apples a week, as they frequently do, were all the apples to be shipped in boxes."

Two Shipments of Apples

Ontario apple growers who export to Great Britain meet with queer experiences, some of which are hard to account for. One of these was drawn to the attention of The Horticulturist lately by Mr. W. H. Dempsey, of Trenton.

"On March 25 last," said Mr. Dempsey, "I loaded a car of apples; three days later I loaded a second car. The apples in each of these cars were equally good. They went to Portland, and were shipped to Liverpool on the same steamer, but were consigned to different buyers. The apples in both cars were branded the same. One car realized about two-thirds more than the other. The apples which brought the lowest prices were reported by the buyer to have sunk six inches in the barrel, and that the juice was running out between the staves. The other reported the apples in his car in perfect condition."

HOW DID IT HAPPEN ?

"What I would like to know," continued Mr. Dempsey, "is how one load of apples could have been injured in this way, while the other remained in such perfect condition ? I am satisfied both firms were honest and reported the case as it was. When I was loading the second car, which was the one bringing the lowest prices, the engine in the yard was doing considerable shunting and the cars were being jarred rather severely. I have thought that the apples may have been injured by the shunting. On the other hand, the injury may have been caused by heat in the hold of the steamer, as one lot of apples might have been

in a part of the hold where there was poor ventilation.

"Had I not sent these apples to two different buyers I would never have heard these particulars, as if only one man had received them he would probably have reported the whole lot to be inferior and I would never have known which shipment was the worst or anything about them. The varieties consisted of Spys, Baldwins, Ben Davis and Golden Russets in the car which turned out badly, while in the other car were Spys, Baldwins, Ben Davis, Golden Reds and a few Stark."

Only Good and Properly Packed Fruit Wanted

J. W. DRAPER & SON, FRUIT IMPORTERS, LONDON, ENG.

The only articles Canadian fruit growers can send to this market with a prospect of success are apples, the choicest pears and cranberries. There are no present indications of an outlet here for their other products. The packages to be recommended are: The barrel, as at present used, for apples generally, and a bushel box for any very choice apples and pears. Small or common pears are useless. A case should contain about 35 pounds of cranberries. All cases should have small battens nailed on the top and on one end, to keep the cases apart, otherwise heat forms in the centre of a pile while they are on the voyage.

We cannot too strongly recommend care in the selection and packing of the fruit. Only really good fruit should be sent, and a barrel or case should contain equal quality throughout. If this system of packing is adopted we feel certain that success will be attained by the packers, but fraudulent packing or careless selection is sure to bring disaster.

The London market receives very largely from all points, and is generally over-supplied with inferior qualities of fruits, but it is only in the very heaviest seasons that there is a glut of fine-grown and well-packed fruit. A packer who sends to this market should, therefore, try to secure the best portion of the demand that exists, and this can only be accomplished by sending the best qualities.

Great Britain

Taking the growing counties as a whole in the British Isles, the apple crop will be but a full half crop. The bulk of these will doubtless be marketed before the Canadian winter fruit is ready for shipment. At lower prices than last year, there ought to be a fair opening for your country's surplus.—(Craze & Goodwin, commission dealers, London, Eng.

There are a large number of horticultural papers published in the United States, but only one in Canada, and that is The Canadian Horticulturist. Help us make it a credit to Canada by recommending it to your friends and patronizing our advertisers.

Talks With Fruit Growers.

I have 2,000 peach trees and practically all are winter killed and damaged by water. Fruit of all sorts will be light except apples.—(George Chambers, Kent Co., Ont.

There will be no fruit for shipping from this district. A good many apple trees are killed, all the English cherry trees and a good many pear and peach trees on sandy soil are dead.—(H. Forbes, Kent Co., Ont.

Apples here are not more than two-thirds of an average crop. They are free from fungus of all kinds. Orchards that have been sprayed show but few worms and less than 3 per cent. of fungus. Japanese plums are a heavy crop; all other sorts practically dead. Peaches, with exception of a few favored orchards, have been badly hurt by the winter or mice.—(Milton Backus, Kent Co., Ont.

Aphis and fungus are very bad where spraying is not done.—(J. E. Hambley, Kent Co., Ont.

Mice were very destructive the past winter. I have eight acres in orchards and never saw trees so badly hurt with frost.—(H. Howard, Wentworth Co., Ont.

There will be a nice crop of apples in our section if conditions continue favorable. The crop is light, but of good quality.—(A. H. Crosby, York Co., Ont.

The curculio seems to have gotten in his work on the plums and peaches pretty well, as a lot of the fruit is dropping. Apples and grapes seem to be doing well, and fruit is making good growth.—(Chas. Lowrey, Lincoln Co., Ont.

Fruit crop below the average in this locality. I have been a subscriber to The Horticulturist for over 30 years, without intermission.—(W. M. Robson, Victoria Co., Ont.

The past winter was the most severe ever known as far as fruit trees are concerned. I had a seedling winter killed that was 14 years old. Last year's fruit was in good condition at the beginning of June, 1904. Very few pests of any kind on trees this year, a most unusual occurrence. Even our English walnuts are free from pests. The Duchess, Wealthy and Mann apples show no injury from severity of past winter.—(D. J. Hall, Grenville Co., Ont.

The crop of winter apples along the shores of Lake Erie will be light. The blossoms were damaged by rain and fruit is falling off considerably.—(Jas. Symmington, Norfolk Co., Ont.

Apples are free from insects and fungus so far, and of good size.—(W. M. Adam, Ontario Co., Ont.

California growers have adopted a good method of protecting their fruit cases. The lids are nailed on, but are protected by cleats nailed across each end of the cover. When purchasers take the cover off to see the fruit, these cleats prevent the slats from splitting and the appearance of the box being injured.

I consider The Horticulturist a very valuable paper and would not like to be without it.—(Robert Scott, Meyersburg, Ont.

DIRECT SHIPMENTS OF FRUIT TO DUBLIN

It seems quite possible the value of Ireland as a market for Canadian fruits has been overlooked in the past by Canadian growers. With the object of learning something concerning the possibilities of this market Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa, made a trial shipment of Duchess apples in boxes on August --, to Belfast. The shipment was made as the result of a letter received from a Dublin buyer asking for trial shipments.

Writing to The Horticulturist Mr. Macoun says :

I am sending you a copy of a letter received from J. H. Sheridan, Dublin, Ireland, in which he holds out inducements to Canadian Fruit growers to ship their fruit direct to Ireland. We have already arranged to make several experimental shipments of apples to Ireland this year in boxes. The first shipment of Duchess apples was sent to Belfast, August 20, in cold storage, via Liverpool. This plan may prove too expensive, but as the rates between Liverpool and Belfast are very low, and the fruit can be sent across in a few hours, we are sanguine of the success of the shipment. Further shipments will probably be sent direct. The shipments are being made to Hugh Gordon, 41 Victoria street, Belfast, Ireland, who is a well known commission man.

Yours Truly, W. T. MACOUN.

THE DUBLIN MARKET.

The letter received by Mr. Macoun asking for these shipments read as follows :

Home Villa, Columbus Road,
Drumcondra, Dublin,

Dear Sir :

I would like to be put in communication with fruit growers in your district that I may endeavor to arrange with them to send their fruit direct to this market for sale, thereby avoiding the expense, etc., they at present incur by dealing with agents and brokers in Canada and England. I believe that it would be more advantageous for growers to pack and consign their crops to a market direct where good prices can be secured, than by depending upon the prices offered by agents for the wholesale dealers.

All the fruit on these markets coming from Canada is received through firms in England and Scotland, and then sold in the fruit markets to the retailers. Owing, therefore, to the number of people handling the fruit and the heavy freight rates from Canada to England and thence to Dublin, fruit is sold here at very stiff prices, but the growers have no benefit out of it as they usually dispose of their crops at fairly low prices.

We have a good market in Dublin for Canadian fruits of all classes, as the home-grown supply is very limited. It is, therefore, open to Canadian growers to establish a good trade with this country which would be to the advantage of both growers and consumers. There would be no difficulty in sending consignments direct to Dublin, as they could come by, say the Head, Lord, or other lines touching this port, and as to getting a profitable market I have no hesitation in saying that I can dispose of all fruit sent me to good advantage. What we require here is steady consignments, and a guarantee that the fruit will be of good uniform packs throughout. I am in a position to dispose of 1,000 to 1,500 barrels of apples per week.

Were I sure that I would receive steady shipments of good quality, I would easily increase this amount, as of course, being here on the spot, I am in a better position to dispose of consignments than the firms in Liverpool, London, or Glasgow, and to better advantage. I wish, if possible, to make the necessary arrangements before the season is too far advanced. As to my bona fides, my solicitors, Mr. Joseph McDermott, 16 Fleet street; Mr. John Coyle, 7 Halston street, or T. J. O'Neill, wine merchant, 69 Dorset street, Dublin, will give any particulars required.—Yours faithfully,

J. H. SHERIDAN.

A FRUIT TRADE EXHIBITION

SAMPSON MORGAN.

A remarkable exhibition of fruit packages may be seen in the foreign fruit market at Covent Garden, England. The display is arranged under the auspices of the French government by Mr. Michael Garcia, the head of the firm of Messrs. Garcia, Jacobs & Co., of London. Canadian fruit growers may know that this firm has a branch at Liverpool under the name of Messrs. Simons, Shuttleworth & Co., and at Glasgow under the name of Messrs. Simons, Jacobs & Co., Michael Simons, Esq., J. P., the head of the firm, being a noted authority on fruit trade matters.

The package which attracts the most attention is an iron frame crate, containing shelves covered with strong wire netting. The fruits in it are grapes, pears, greengages, peaches, etc. The greengages are put up in dome boxes, and the tomatoes in rush baskets. The large iron frame crate is a returnable package ; the small boxes and baskets are sold with the fruit.

In these days fruit producers must market evenly-graded, large, high colored fruits of choice quality, neatly put up in small packages, if they expect to get the highest prices. For such the demand in the British markets is limitless. The Paris agents send their finest well grown greengages in little boxes holding 40 fruits in two layers. In each layer there are five rows containing four greengages each. They ship early-forced grapes to Covent Garden in boxes of about the same size. The most experienced French shippers recognize the important part that the small and attractively filled package plays in respect to sale. Canadian fruit exporters have in many instances still much to learn in this connection. Possibly these notes on the fruit package exhibition may set some thinking.

Matters That Should Be Settled

G. H. HUTTON, EASTON'S CORNERS, ONT.

The outlook for the export trade in apples, judging from past records, seems promising. There are, however, some conditions that need to be changed before it will be possible to reckon on probable returns.

Last year it was impossible, in many cases, to secure barrels, and when boxes were used the extra cost of packing and packages consumed the profit. Under ordinary circumstances, the northwest offers a good opening for much of our fruit, but the freight charges are too high to warrant much effort to secure this trade. For the smaller fruits I believe that the removal of the duty on sugar, so that canning factories might be established on a profitable basis, would be a great inducement for a larger production of these fruits.

Judging from what I have seen of the McIntosh Red throughout the Ottawa valley, together with my own experience and that of such large growers as Mr. Harold Jones, of Maitland, I believe there is no better apple for this district. It is true that the McIntosh and its kindred is liable to spot, but by careful application of Bordeaux this disease may be prevented from causing injury in excess of 5 per cent. during the most unfavorable seasons. The yield and the price realized for perfect apples will amply repay for the care and treatment.

One of the greatest mistakes that has been made in this section in regard to planting orchards has been in planting too closely. In eight to ten years the branches of the trees in many orchards will interlace. If the trees have room to grow and attain full size the fruit will have a better exposure to the sun and thus have a better flavor and color, and command the highest market price.

Huron County as a Fruit Section

WM. WARNOCK, GODERICH, ONT.

For apples, pears, plums and cherries there is no better district in the province than Huron county, and my experience with grapes and peaches has been very favorable. I have 44 varieties of the best hardy grapes under cultivation, and they have given very satisfactory crops for the past 14 years. I have grown 32-ounce bunches on my Wilder and Eaton varieties, and 26-ounce bunches on my Campbell's Early and Agawam. I have never seen better grapes than can be grown here. The cause of our fruit coming to such great perfection is in our very suitable soil and splendid climate, as grapewood and all new growth of fruit trees have a longer time to ripen and mature at the end of the growing season, from the effect of Lake Huron's deep waters, which keep away severe early frost in the fall for at least a distance of three miles inland.

Aside from the peculiar natural adaptability of this section for fruit growing we in Goderich expect to be favored, above all other parts of the province, in supplying the great northwest provinces with fruit. The largest grain boats from Port Arthur come into Goderich harbor and unload at our elevators, and they will always make the most direct as well as the cheapest means of transportation as far as Port Arthur. These large boats will be strong competitors for freight up the lakes. This will give the fruit growers of this vicinity a considerable advantage over other parts of the province in competing for the trade of the northwest, which is certain to be of very great importance to the fruit growers of Ontario in a few years.

The Best System of Cold Storage

G. W. HUNT, OTTAWA, ONT.

The best system of cold storage is a matter to which I have given a good deal of consideration and experiment during the last four years. Until that time I was seriously opposed to the transportation of our Ontario fruits under ice, and did not change my views until I had it demonstrated to my own satisfaction that our fruits could be transported under ice and not destroy the keeping quality to any tangible degree.

Having made these tests I am firmly of the opinion that the Hanrahan car is without an equal. To my mind it is the only refrigerator car running that is of any use to the growers for transporting perishable fruit long distances. I believe the universal use of the Hanrahan car on Canadian roads would mean at least one to two million dollars a year to the fruit growers of Ontario.

The fact that the goods in this car are delivered dry and in good conditions means a great deal to the grower, not to take into consideration the fact that with the universal use of this car glutted markets would be unknown, as one or two days does not make any material difference in the quality of the fruit. In order to have this or any other system a success the fruit must necessarily be in good condition when it goes in the car, and the car not loaded to the roof. The minimum load can be put in the Hanrahan car and kept in good condition for two weeks.

Only The Best Wanted.—The Fruit Division at Ottawa has received the following report from Inspector John Brown, of Glasgow:

The first shipment of American apples arrived at Glasgow August 10 in the steamship "Anchoria," of the Anchor Line. There were about 100 barrels in the parcel. These consisted principally of Duchess, which averaged 12s. to 14s. Fruit was small and not of fancy quality. The supplies of home and continental fruit are large, and it will be advisable for Canada to send only her best to Great Britain this season.

The Fruit Division, Ottawa, is warning apple shippers that in order to grade as No. 1 or XXX, apples must be fairly mature. Apples that have not taken on their proper color and otherwise show marks of inferiority as the result of being pulled too green cannot be graded anything higher than No. 2.

Increased the Door Receipts

Our annual show is held in September, and usually has about 200 entries. The prize money paid amounts to about $150. Last year we gave the children about $50 in seeds and plants, which were to be exhibited at the fall show. We afterwards found a great many of the children had sold them. However, we had thirty entries, and some of the children obtained as much as $5 in prizes.

This season we have given away 150 plants, three to each child, for which we have charged them ten cents, to be refunded if the plants are exhibited. The result has been that we have procured a far better class of applicants than we had last year. We find as a result of the children exhibiting we have an increase in our door receipts of more than double over last year. This year we are considering the advisability of holding a promenade concert in connection with our show.—(H. L. Beal, Sec. Peterboro Hort'l Soc.

Have Held Many Shows

The Galt Horticultural Society held its 13th annual exhibition and flower show at the Hockey rink, August 31 and September 1 and 2. On the opening day the exhibition was open only in the evening, and the two remaining days from 8 a.m. to 10 p.m.

The prize list was a long one, and consisted of all cash prizes. Class A comprised plants in pots, open to all; class B, plants in pots, open to amateurs only; class D, cut flowers; class E, cut flowers, open to all; class F, fruits, to be shown unpolished, open to all, also including grapes grown under glass and in the open air, and class G, vegetables, open to all. There were ten special prizes for different displays, including single flowers, bouquets, baskets, decorated table, plants, etc.

School Children's Sweet Pea Exhibition

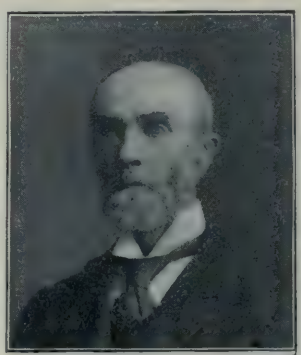
The most interesting feature of the regular monthly meeting of the Ottawa Horticultural Society during August was the exhibition of sweet peas made by the school children of the city, for which prizes were offered by Mr. R. B. Whyte, of Ottawa. There were 110 entries, many of the exhibits being remarkably fine. The display was a handsome one.

A short address was given to the children by Mayor J. A. Ellis, who acted as a judge of the exhibit. An illustration of this exhibit will be published in The Horticulturist before long. The regular meeting of the society was well attended, and there were numerous exhibits.

During the summer the attention of our society has been directed to the beautifying of the old cemeteries in the town, and this work has been entrusted to a committee of ladies chosen from the members of the society. The work has proven very successful and has been the means of bringing our society more prominently before the public.—(C. J. Foy, Sec. Perth Hort'l Soc.

A Popular House Meeting

The members of the Grimsby Horticultural Society met at the house of Mr. Linus Woolverton August 16. Each member was requested to bring at least one contribution to the flower table, and so many of them responded that the dining room extension table at full length scarcely afforded room for the gorgeous display. The hours were from seven to 10 p. m., and the whole affair had the air of an evening reception. An unusually interesting musical program added greatly to the evening's pleasure, and to this numbers were contributed by the Grimsby orchestra, by Mr. Kimmins, of Winona, a much appreciated soloist, by Miss Mortimer, of Washington, whose mandolin and violin solos were beyond criticism, and others. The president, Mr. A. Rutherford, took charge of the program, and during the course of the evening introduced Mr. J. R. Dickson, representing the Hamilton Horticultural Society, who gave an address, in which he complimented the Grimsby society on conducting such an interesting and profitable social meeting, and contrasted it as being far more satisfactory than the large public exhibition with heavy prizes, which so often left the society hopelessly in debt.—W.



MR. CHAS. MEIGHEN.

One of the most enterprising and successful horticultural societies in the province is located in the little town of Perth, its president being Mr. Charles Meighen, whose likeness is here shown. This society has done a great deal to improve the public spots in the town. In this connection Mr. Meighen was the prime mover in having the grounds of the Collegiate Institute and public schools beautified by planting flowers, with the result that they compare favorably with similar grounds to be found anywhere. Ever since the society's organization nine years ago, Mr. Meighen has been on the board of directors. Having always taken a great interest in horticulture and having a very fine garden of his own, Mr. Meighan's experience has made him an authority on the growing and cultivation of flowers.

This will be the first fall in some years in which our society will hold a separate show, it having hitherto united with the Agricultural society. The show will be held in some large building, centrally located, possibly the new armouries. A band concert and promenade will probably be held in connection with the evening show. This society has had the record in past years of giving the best prizes of any horticultural society in the province. Last year five or six special cash prizes were given by zealous members. The paid membership last year was 134.—(Leman O. Guild, Sec'y Kingston Hort'l Soc.

THE FRUIT PROSPECTS FOR 1904.

Realizing that fruit growers at this season are anxious to have some idea of the fruit prospects, not only in Ontario, but throughout Canada and the United States generally, The Horticulturist during August, wrote to some 900 correspondents and well known authorities all over the continent to gain some idea of what the total production of fruit is likely to be. Owing to lack of space it has been found impossible to give this information nearly as full as it was intended but fairly complete reports will here be found.

The total apple crop this year is likely to be somewhat less than last season. In Ontario both fall and winter apples will be a medium crop of fair quality. In Nova Scotia and Quebec the yield will be somewhat less than last year, while the quality will hardly be as good. In New Brunswick and British Columbia full crops are anticipated. In the United States the total production of apples will be somewhat below last year, but as the quality generally is better the prospects are fair for a somewhat larger volume of barrelling apples. This estimate conflicts somewhat with the statements the commission dealers make, but may be taken as approximately correct.

The plum crop throughout Canada generally will be a very light one. In the United States it will be a little larger but will not be heavy. Pears throughout Canada will not be a full crop, but a fair yield may be anticipated. The quality generally is good.

Fall Apples a Moderate Crop

The situation as regards the probable yield of the various varieties of fall apples continues practically the same as announced in the July Horticulturist. Reports received from all over Ontario show that the yield of fall apples varies considerably. Many growers report that they will have light crops, while others anticipate a full yield to a production excessive of last year's by 25 to 30 per cent. On the whole, appearances indicate that the crop will be a medium one. Growers will do well to accept buyers' statements of a heavy crop with caution.

In the counties bordering on the northern shore of Lake Ontario the majority of reports received all go to indicate that the crop will be a medium to full one. As regards the quality it will undoubtedly be quite up to the average. Growers in the Lake Huron and Georgian Bay districts anticipate a light to full crop, the majority of the correspondents placing the yield as a medium one. The same applies to the Niagara district. Many growers state the insect pests have not been as bad this year as last season, and that there has been very little fungus growth.

Less Winter Apples Than Last Year

Although The Horticulturist has heard from numerous correspondents in all the principal apple growing sections of the province, it has been found to be a difficult matter to make any definite estimate of the extent of the probable yield of winter apples. Reports vary widely, some growers estimating the yield in their sections to be one-third to one-half less than last year, while other growers in the same districts estimate an increased yield of 25 to 50 per cent. Some varieties which are bearing heavily in certain portions of the province are bearing lightly in others. On the whole the indications are that the supply of winter apples will be quite a little less than last season.

Running from the county of Halton to the county of Frontenac, along the shore of Lake Ontario, a light to medium and in some cases a full yield is generally anticipated. The Baldwin and Spy appear to exist in the counties bordering on Georgian Bay and Lake Huron.

The Niagara district seems likely to produce a medium crop of winter apples. Many orchards will produce lightly, while some will be almost a full crop, so that the total yield is likely to be a medium one. There is very little complaint of spot or damage to the crop in any way, so that the quality, generally speaking, is likely to be fair.

Plum Crop Practically a Failure

The Horticulturist was evidently well informed last month when it announced that the plum crop throughout Ontario would be almost a failure. Reports received as late as August 25 from all parts of the province, indicate that in no county will there be more than a light yield, while in the great majority of counties the crop is practically a failure. A majority of correspondents in the counties of Halton, Durham, Ontario, Victoria, Peterboro and Prince Edward estimate the plum crop as a failure, while in Hastings county correspondents place the production at from a failure to a very light yield. In Eastern Ontario the crop is a failure.

Bordering Lake Huron and in the Georgian Bay district reports are to the same effect. Five out of six growers heard from in Lambton, four out of six in Bruce, eight out of ten in Grey, and eight out of ten in Simcoe counties place the production as a failure. In the Nia-

The Horticulturist for 15 Months

During the past few months sample copies of The Horticulturist have been sent to a large number of fruit growers. We want all Canadian fruit growers who are not taking the paper to subscribe. The following special offer is therefore made. If any fruit grower **not now taking The Horticulturist** will send us one dollar it will pay his subscription from October, 1904, to January, 1906, or 15 months for only $1. Is the paper not well worth it? Send us your dollar and we will send you The Horticulturist, the only fruit paper published in Canada. Address all communications to The Canadian Horticulturist, Toronto, Ont.

gara district conditions are much the same, being if anything a little more encouraging than in the other sections. In this section quite a few correspondents estimate the yield as a light one. The total crop of the province is not likely to range more than 15 per cent. of last year's.

Moderate Yield of Pears

During the past month the promise for a medium yield of pears has improved. Many correspondents who a few weeks ago anticipated a light yield are now apparently hopeful of a medium to full crop. This is more particularly true in the Niagara district. In Wentworth, Lincoln and Welland counties early pears will average from a medium to a full crop, while late varieties promise a light to full yield.

Bordering the northern shore of Lake Ontario growers generally expect light to medium and even full returns. This is true of all counties along the lake. In the western and northern districts of the province indications are that the yield of early pears, while a failure in a number of orchards, will be medium. Late varieties apparently do not give quite as good promise. although a light to medium crop will be general. Taking the province as a whole, both early and late pears, while behind last year, will be a fair crop.

Reports From Ontario Growers

Wentworth County

Winona.—There will not be more than half the winter apples in this section there were last year; the sample will be better. Pears are a very good crop and quite free from fungus Peaches at Winona and Grimsby are more than half a crop, the quality will be good, the foliage is very healthy. Unsprayed plum orchards are looking very badly. The leaves have dropped, the plums are bare, and will be of little value. Well sprayed orchards are healthy. Grapes have not done well for the last few weeks on account of cool wet weather and black rot, and it is a question if the crop will be much above the average.—(M. Pettit.

Welland County

Fonth....—The apple crop will be very large, fine and clean. Peaches are a failure except a few orchards bordering on Lake Ontario; through the central sections about one-half the peach trees were killed by the severe winter. Pears promise a large crop and a fine sample. Plums are almost a total failure, a large number of the trees having been injured by the winter. Grapes will be a large crop, although the leaf blight has appeared on the thin leaved varieties like Delaware.—(E. Morris.

The Lake Huron District

Walkerton.—The fruit crops in this district in some respects are not as good as last season, and in others they are better. The apple crop, on the whole, is lighter, but the quality is first-class. In some orchards the crop is much better even in quantity than last year. Spys are good; Russets, Greenings, Ben Davis, medium; Baldwins a failure. Early apples medium to good. Prospects for trade are bright. Pears medium. Plums a total failure. The peach trees were all killed by the winter frost. Grapes are medium to good, but are not much grown here.—(A. E. Sherrington.

Simcoe County

Craighurst.—There will be no plums. Early apples are abundant. There will be a fair yield of fall varieties, but winter varieties will be below the average and far below last year. The quality of early and fall apples promises to be well up to the mark. Winter apples may be a little under sized.—(G. C. Caston.

Lincoln County

St. Catharines.—The early peaches are fairly favorable as to quality, which is not of the best. Healthy trees have a full crop. The season for yellow flesh peaches, including Triumph and Yellow St. John, is about over, and the peaches of the Crawford type are now ready for the market. These will be a light crop. It is not likely the total production of peaches in the Niagara district will be over 25 per cent. of that of last year. Apples of all kinds are fairly heavy all through the district, except one or two varieties, including the Northern Spy. They will be a full crop. Pears are light, Bartletts being the best. The total yield will probably not exceed 50 per cent. of a full crop. Plums, with the exception of the Japanese varieties, are very light. If the growers secure 20 per cent. of a full crop it will be all that can be expected. Black rot has caused considerable trouble and is rapidly extending through the vineyards. Had it not been for this trouble the grape crop would have been unusually heavy and of extremely good quality. It is difficult to estimate the damage that will result from the rot. The majority of the growers have not prepared to deal with the trouble, which requires thorough and energetic treatment. In spite of this trouble, a good crop of grapes is probable.—(W. H. Bunting, Pres. Ont. Fruit Growers' Ass'n.

The Burlington District

Burlington.—Apples are a short crop as compared with '03, probably not more than 50 per cent. Quality good, not much spot; some codling moth in trees thickly laden. Size of apples, normal. Pears a fair crop, probably equal to that of last year. Plums are practically nil. I doubt if there are 15 baskets on 1,000 trees in my orchard. The fruit buds must have been destroyed by the severe winter. Peaches very much the same as plums, few to be found.

Most trees, however, are sound and looking well. Grapes offer well. The crop is exceptionally heavy, standard hardy branches being above the average. Upon the whole, the grape outlook is good.—(A. W. Peart.

Essex County

Leamington.—This is certainly an off year for fruit in Essex county. The acreage of small fruits grown is much less than it was a few years ago, caused chiefly by difficulty in getting the fruit picked. Plums are very light, not enough to supply local demand; the same may be said of grapes. Peach trees that survived the severe winter were considerably injured and dropped most of their fruit, so there are very few more peaches than will be wanted for local use. Pears are a light crop. Early apples good and of fine quality; winter apples a light crop and poor quality.—J. L. Hillborn.

Grenville County

Maitland.—The apple crop will not be more than 50 per cent. of last year. The fruit is fairly clean and growing fairly well, and gives promise of a large percentage of No. 1 fruit. Injury was sustained in some orchards by hail in July, but by careful selection they will not injure the sample. The main crop is Fameuse in this county, only a small percentage of late winter apples being grown. The yield will be light.—(Harold Jones.

Fruit Prospects in the Different Provinces

Nova Scotia

The apple crop of Nova Scotia for export is estimated at upwards of 500,000 barrels as against something over that amount exported last season. The crop in general, however, is considered inferior to that of last year. Generally speaking, the apple crop is an average one, but there will not be as many No. 1 for shipment as last season. Baldwins, Kings, Ribstone and Blenheim are quite generally reported as a full crop. The plum crop will be slightly over ..... of an average crop. Pears rather small, 50 per cent. of an average yield. —(W. S. Blair, Nappan, N. S.

Kentville.—The crop of apples in the King and Annapolis valley will not be as large as estimated in June, and our export will probably be between 4,000 and 5,000 barrels instead of 6,000, as last year. It will be an excellent Baldwin and Blenheim year. Spy and Nonpareil will be a good crop; Nonpareil fairly heavy and somewhat spotted. Gravenstein in the heaviest fruiting districts of Kings county are very spotted, except where thoroughly sprayed. There is more unquestionable evidence this year of the benefits from spraying than ever before, and those who made up their minds last year to dispense with spray pumps will bring them into use next season. The plum crop will be about 40 per cent. of last year; peach crop almost nothing, trees suffering from severe winter; pear crop 40 to 50 per cent of last year.—(Ralph S. Eaton.

Rossway.—The apple crop is rather light here. In looking over the orchards I find a great many trees with very little fruit. A few trees seem to be fairly well filled. There seems to be a lighter crop than last year, and apples seem to be rather small in size. As to plums, there are very few trees in this vicinity, and few plums on the few trees. There are not more than half a dozen bearing pear trees within a dozen miles.—(A. C. Sabean.

New Brunswick

Bellisle Creek.—There are no large orchards in this province, but quite a large number of small ones. The prospect for the apple crop is good. The Duchess, Fameuse, Peach, New Brunswick, Yellow Transparent and King are very heavily loaded; the Red Astrachan and some others are not bearing any. The apple crop will be a great deal larger than it was last year; plums also. Very few pear trees here. —(Benj. Crawford.

Fredericton.—The apple crop is better than last year. Many fall and winter varieties are very promising. Late winter apples not much grown, but what there are look well. Plums make no show here this season; pears not much grown. Our orchard promises fully double the crop of last season.—(J. C. Gilman.

Anagance.—The Duchess and Yellow Transparent apples are a full crop; the Alexander, Ben Davis, McIntosh Red, Tolman Sweet, Princess Louise and Suton's Beauty are a fair crop; the Baldwin and Russets are a failure, and all the other kinds are very light. Plums will not be more than quarter of a crop; no pears worth mentioning in N. B.—(Lester Stocton.

Quebec

West Lambert.—The fruit crop in this province will be much below the average, due, no doubt, to the damage caused by the extreme cold weather last winter. Apple trees are nearly all more or less damaged. Many plum trees were killed outright. Small fruits seem to be about an average crop.—(J. Byrne.

Henrysburg.—The apple crop is a very fine one and free from fungus or spot. There is not going to be such a large crop as people looked for in the forepart of the season. Fameuse crop is looking fine and going to be a medium one. Winter apples are a light crop. Pears not grown to any extent. Plums fine and a full crop. Apple crop much heavier than last year. There will be 12,000 or 15,000 barrels shipped from this part of the province this fall. Apple barrels are so dear there will be thousands of barrels of apples not shipped to market. Barrels are costing us $40 to $43 per hundred.—(John Spencer.

Manitoba

Brandon.—Standard apples are not grown to any extent in this province. The more tender varieties of apples were badly injured by last winter's frost, and the hardy kinds are not bearing quite as well as usual. Native varieties of plums under cultivation are well loaded with fruit. These are the most suitable for the northwest, as they are about the only ones that ripen sufficiently early. Small fruits of all kinds are about an average crop; wild fruit is quite scarce.—(S. A. Bedford, Supt. Experimental Farm for Manitoba.

British Columbia

Taken altogether the fruit crop of British Columbia is very good and well above the average. In some districts a few varieties are scarce, but taking the exceptionally dry season into consideration, on the whole, the outlook is extremely promising. In the Okanagan Valley and the district round the Lower Frazer, the chief fruit growing section of British Columbia, the crops of apples, pears and plums are very good, while prunes are a little scarce. In the Boundary country the apple and pear crop is very good, also plums and prunes. At the coast the crop of apples, pears and plums are all very good, with prunes about a quarter crop. In the interior, where fruit is just past the experimental stage and the orchards are beginning to give some return, the crops are again very good, all round apples and pears being especially fine. The district around Nelson along the shore of the Kootenay river is rapidly forging ahead as a fruit growing district. Taking the province all through the fruit crops in general compare very favorably with last season, more fruit being grown this year, as more trees are coming into bearing.—(H. J. Marks, Nelson, B. C.

Fruit Division Report for August

The fruit division of the Dominion department of agriculture recently issued the following report concerning fruit crop conditions: Prospects have not changed materially since the last report. In southern Ontario the fruit will at least equal the crop of last year in quantity and surpass it in quality. In the Georgian Bay and Lake Ontario district everything points to a medium crop, cleaner than usual. Nova Scotia is developing considerable fungus. Prince Edward Island reports no appreciable change.

Pears of all sorts are a light crop. Plums are a total failure in more than half the orchards and only a light crop anywhere. The prospects for peaches have not improved. Fifty per cent. of the correspondents report a total failure. Black rot has injured the grape crop materially in the larger vineyards, but the crop will still be fair.

BULBS

HORTICULTURAL SOCIETIES

Who make a Fall Distribution
will do well to get our : : :

SPECIAL OFFER

QUALITY FIRST CONSIDERATION

Lists and Prices on Application.

J. GAMMAGE & SONS, LONDON, ONTARIO.

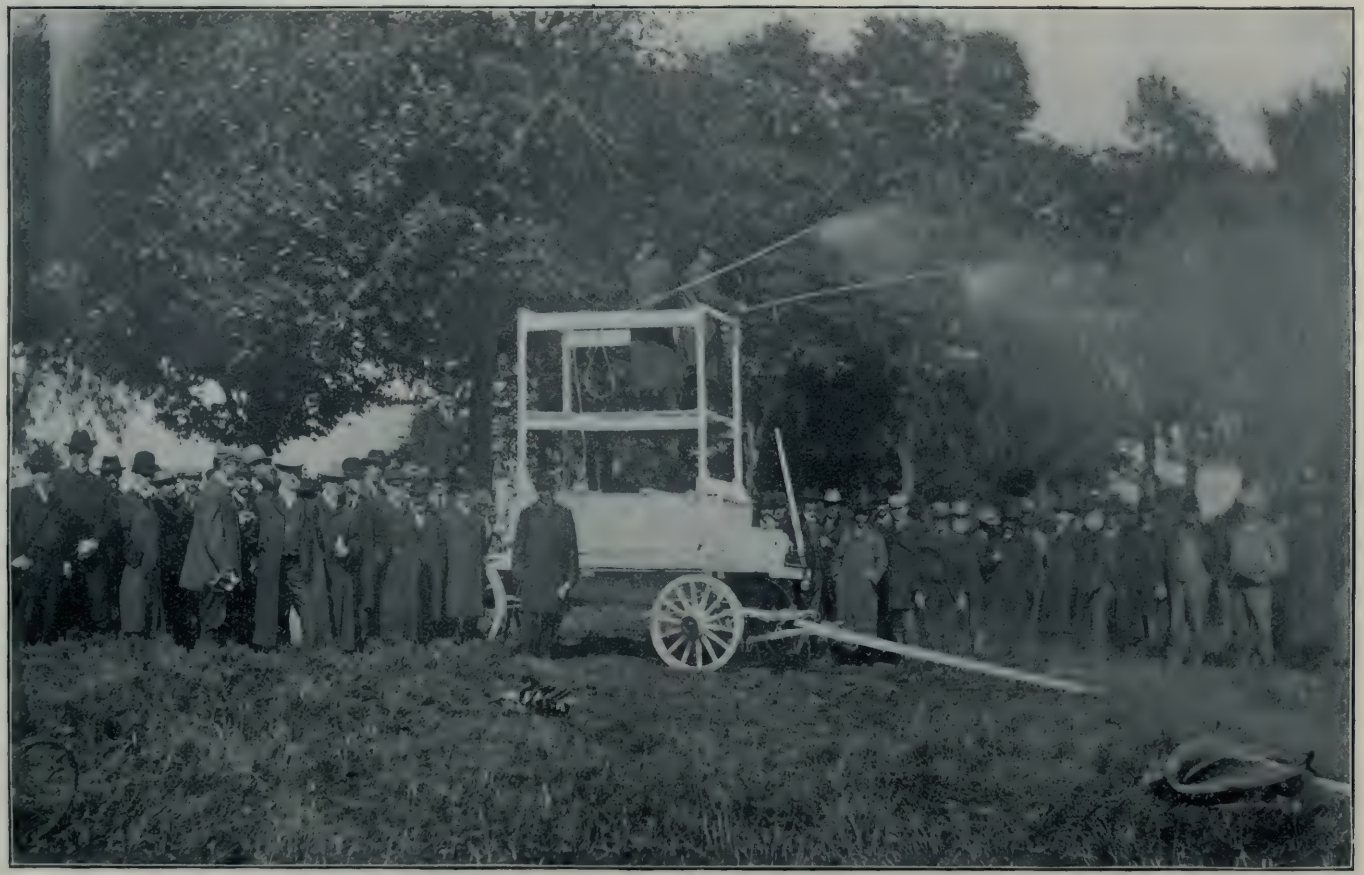
TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

OCTOBER

OCTOBER morning!—how the sun
Glitters on glowing shock and sheaf,
On apple crisp with mellow gold,
On wonder-painted leaf.

October evening!—look, the moon,
Like one in Fairyland benighted!
Out-doors Jack Frost bites sharp; within
Good! our first fire is lighted.

J. J. PIATT.



An Exhibition of Power Spraying in an Oxford County Orchard.

The power spraying conducted during the past summer under the direction of the Dominion Fruit Division, Ottawa, in a number of orchards near Ingersoll, has resulted most successfully. On September 21 leading officials, with orchardists of the district, visited a number of the orchards that had been sprayed to compare them with others that had not been sprayed. An account of this visit is published in this issue. The illustration shows an exhibition that was given of power spraying with Mr. Alex. McNeill, Chief of the Fruit Division, holding the nozzle on the right, and Mr. P. W. Hodgetts, Secretary of the Fruit Growers' Association, directing the nozzle on the left. At the foot of the wagon to the right is Prof. H. L. Hutt. (Photograph taken specially for The Canadian Horticulturist.)

The Canadian Horticulturist

OCTOBER, 1904

VOLUME XXVII NUMBER 10

SPRAYING TESTS AGAINST THE SCALE

PROF. R. HARCOURT, ONT. AGRI. COLLEGE, GUELPH.

LAST spring a considerable quantity of the lime and sulphur mixture was used in the Niagara district in combating the San Jose scale. It is gratifying to note that wherever it has been thoroughly applied the results have been most satisfactory.

About the middle of July and again one month later, in company with Prof. Lochhead, P. Hodgetts, Secretary Fruit Growers' Association, J. Fred. Smith, Glanford, Chief San Jose Scale Inspector, and Robt. Thompson, St. Catherines, I visited a number of peach, plum, and pear orchards in the St. Catherines district which had been more or less badly infested with the scale. In every instance where trees were sprayed with the lime and sulphur mixture the scale was checked, just in proportion to the thoroughness with which the spraying was done.

From what was seen in the orchards and from the statements of many of the fruit growers, there seems to be no doubt that this mixture will destroy the scale, but to do so it must come in direct contact with the scale, as any parts left uncovered in the spraying, act as a seed bed for the reinfestment of the whole tree. As it is practically impossible to cover every crutch and crevice on the tree, the use of the lime and sulphur spray may not exterminate the scale, but it has been clearly demonstrated that the pest can be controlled, provided the spraying is carefully done.

One very pleasing feature in connection with this matter is that, while the cost and labor entailed in preparing and applying the lime and sulphur mixture is considerable, it is not so great as was anticipated, and is not regarded as an insurmountable difficulty. Further, its application has apparently greatly reduced the amount of leaf curl.

In the June number of the Horticulturist (page 240) it was announced that several barrels of lime-sulphur and sal soda, and lime-sulphur and caustic soda mixtures had been prepared and applied. It will be remembered that the advantage of these mixtures over the ordinary lime and sulphur is that they do not require boiling and thus this tedious part of the manufacturing process is saved. A thorough inspection of the trees sprayed with these preparations shows that they have been about as successful in destroying the scale as that made by boiling. More experimenting will have to be done before it can be said definitely that it will always give as good results, but enough has been done to demonstrate that this method of preparation

can be followed with a reasonable assurance of success by those who cannot get the mixture from the steam boiling plants.

In the preparation of the mixtures, using either sal soda or caustic soda and not boiling, it is very essential that a quick slaking lime be used. If the lime slakes slowly there is not enough heat generated to cause the required chemical changes to take place and the substance is practically useless. The indications from this year's experiments are, that, if good, quick slaking lime is slaked with warm water and the sulphur and sal soda added so as to get the full benefit of the heat developed, a good useful spraying material is obtained. The ease with which the lime-sulphur and sal soda or lime-sulphur and caustic soda mixtures may be prepared will greatly recommend them to the small fruit grower, who has not sufficient trees to warrant the installing of a steam boiling plant.

A half barrel lot of caustic soda solution (1 pound in 5 gallons of water) was applied on peach trees quite badly infested with the scale without any appreciable good results being secured.

A solution of sulphide of potassium (1 pound in 2 gallons of water) was also applied in two different peach orchards. While the results noticed were not so satisfactory as when the lime and sulphur preparation was used, the scale was sufficiently checked to warrant the continuation of experiments. Moreover, if potassium sulphide will destroy the scale, it is reasonable to expect that the allied substance sodium sulphide, which has the advantage of being much cheaper, will also do so. Here also there is room for further experimentation.

Fruit Growers Who Have United

W. D. A. ROSS, SECRETARY.

THE Chatham Fruit Growers' Association has a membership of about 60, although the bulk of the fruit is grown by about 20 of the members. The largest orchard contains about 1,000 trees just coming into bearing. This year the directors decided to purchase a power spraying machine and sprayed a number of orchards.

Members are charged four cents per tree for each spraying of average trees, or 16 cents for the four sprayings. As the fruit is handled by the association the members have the privilege of paying either when the work is done or out of the proceeds of fruit sales in the fall as they prefer. We have two men to handle the two loads of hose, one carrying six nozzles, the other eight, and a driver in addition to the two hands for spraying. We made a special effort to induce the members to prune their trees thoroughly so as to make the experiment as complete a success as possible.

Our association has been in existence for about four years. Previous to that time, however, the members had joined in shipping several carlots during two seasons. In 1900, our heavy fruit year, we shipped 21 car loads. In 1901 the crop was very light and no shipping was done. In 1902 we shipped 42 cars, and last season, another off crop, seven car loads.

Best Paying Apples.—Mr. A. W. Peart, of Burlington, believes the leading varieties of summer apples in his district are Duchess and Astrachan. The color of the Yellow Transparent prohibits it for export trade. Of fall apples, Ribston Pippin and Blenheim rank highest, while in late fall and winter varieties King, Baldwin, Greening and Northern Spy head the list. These varieties, he believes, pay the best in his district.

THE VALUE OF POWER SPRAYING DEMONSTRATED

SUCH fruit growers as still remain skeptical or indifferent to the benefits that result from proper spraying should have attended the "perambulating orchard meetings" held September 21 near Ingersoll. Evidence of the value of spraying was furnished in abundance. The gathering was the result of the power spraying demonstrations conducted during the summer in the vicinity of Ingersoll, under the direction of the Fruit Division of the Department of Agriculture at Ottawa.

It is believed power spraying can be done most effectively and cheaply by farmers, who grow fruit on a small scale, if they will cooperate and engage a competent man to look after the work. This man can afford to buy a power sprayer and can undertake the work by contract just as threshing is done for farmers. Where a large number of growers unite such a man can make good wages, while the expense to each grower is light, and he is saved the trouble of undertaking the work himself.

To demonstrate the advantages of this method the Fruit Division, early in the season, induced a number of farmers in the vicinity of Ingersoll to cooperate and guaranteed that the cost would not be more than five cents for each spraying. The farmers agreed to pay five cents per tree for spraying. The contracts were made for spraying 3,300 trees four times. The work was carried out under the supervision of a local man, Mr. J. C. Harris, to the satisfaction of every person interested.

The orchard meeting September 21 was to give the farmers of the neighborhood, and

Loading the Trial Car of Fruit at Grimsby for Winnipeg.

During September two trial shipments of fruit were made from Ontario to Winnipeg to further test the possibilities of shipping fruit to that market. One car was loaded at St. Catharines and the other at Grimsby. The loading of the car at the latter point is here shown. The consignment comprised pears, apples, grapes, peaches, etc. The shipments were made under the direct supervision of Prof. J. B. Reynolds, of the Agricultural College, Guelph, who may be seen standing in the doorway to the right. The Secretary of the Ontario Fruit Growers' Association, Mr. P. W. Hodgetts, is standing on the load. The Horticulturist has received word from Prof. Reynolds that both shipments reached Winnipeg in excellent condition, and that the fruit was considered to be the best lot that had reached the city for some time. The first car was eight days in transit. The prices realized were satisfactory; apples bringing 75 cents to $1 a bushel; pears 75 cents to $1.10 a half bushel; plums $1 to $1.10 per crate of 20 pounds net; grapes $1.40 to $1.65 per crate of 30 pounds net; and peaches $1.10 to $1.25 per box (California package). (Photograph taken specially for The Canadian Horticulturist.)

the public generally, an opportunity to see the marked contrast between the sprayed and unsprayed orchards. Seventy-five to 80 farmers assembled together, with some half-dozen newspaper men, and drove from orchard to orchard that those present might examine the quality of the fruit and make comparisons at first hand. What they saw was a revelation to those present. The fruit in the orchards that had been sprayed was in excellent condition, while in the unsprayed orchards a large proportion of the fruit was practically worthless for commercial purposes. A prominent buyer, Mr. Seldon, of Ingersoll, who was present, stated that the only fruit in the section worth buying was that in the sprayed orchards. The difference in quality was very apparent and convincing as regards the value of spraying.

The meeting was led by Mr. McNeill, Chief of the Fruit Division, and at suitable points Prof. Hutt, of the Ontario Agricultural College, explained different features of orchard practice. He spoke particularly on the question of orchard culture, and noted that, while the fruit was most excellent in the sprayed orchards, Providence had been especially kind, as most of them were in sod and not too well pruned. He recommended, for the general practice, clean cultivation during the growing season and cover crops during the rest of the year.

Mr. Putnam, Superintendent of Farmers' Institutes, spoke most encouragingly of the opening for educational work in the institutes. He expressed the opinion that the work is only beginning, and has in no sense reached its fullest development.

At the close of the meeting Mr. McNeill spoke upon the subject of how to sell the apple crop. Owing to a combination of unfortunate circumstances, not easy to explain, many of the farmers who have the very finest apples are not offered more than 25 cents per barrel, and in some cases can not get buyers at any price. It was pointed out that with the exception of the sprayed orchards there was not an orchard in the neighborhood that would grade more than 25 per cent. of number one fruit, and therefore there was no encouragement for outside buyers to come in. If owners of the sprayed orchards would unite themselves into a cooperative association so that their manager could offer from 3,000 to 6,000 barrels of such fruit as was seen in the sprayed orchards that day there would not be the slightest difficulty in placing these apples on the market at the top price for the season.

As things are, Mr. McNeill said, he could not undertake to ask any buyer from a distance to visit Ingersoll for the small quantity of fruit the growers have to offer, as owing to the poor quality of fruit in the neighborhood, on all except sprayed orchards, there was absolutely nothing to sell. Strong points were made in favor of cooperation in all orchard work, as well as selling, as well as a plea for better methods in fruit growing. The weather was ideal and the meeting was a great success.

There is no use trying to smother out twitch grass. I put pea straw two feet deep over a half acre, but found that it was useless, as the grass grew up through the straw. Covering with straw and burning over is quite as ineffective owing to the roots being so deep. The only way seems to be to root it out.—(A. C. Lee, Paris.

Cost of Apple Barrels.—I have always packed apples in barrels made in Napanee. They cost 35 to 55 cents delivered last season. This year 40 cents is asked. Judging from the amount of barrels required in this section, which will be less than half of last year's needs, there will be no advance on the figure quoted.—(N. B. Hamm, Bath, Ont.

THE BELLEVILLE NURSERIES

SOME of Canada's leading nurseries have recently been described in The Horticulturist. Among these must be included the Belleville Nurseries, at Belleville, managed by Mr. W. C. Reid. While the area of these nurseries seems small, when compared with the mammoth nurseries in the Niagara district the firm fills a field peculiarly its own. Being situated in Eastern Ontario, it is able to produce stock specially adapted to the requirements of that portion of the province. The number of varieties handled being comparatively small enables the management to make a specialty of those produced.

"My object," said Mr. Reid, to an editorial representative of The Horticulturist, who recently visited these nurseries, "is to get hardy stock which will suit the northern climate, and then secure the very best variety of this hardy stock. When I started here some eight years ago, with about two and a half acres, many people said that nursery stock could not be grown successfully at Belleville. However, I have succeeded well enough to now have about 35 acres in nursery stock of different lines.

The home nursery consists of six acres, all of which are inside the corporation. Practically all of these six acres are planted in ornamental stock and comprise evergreens and shrubs of different kinds. One fine block of Norway spruce averaged three to five feet in height when the representative of The Horticulturist visited the place, while another block averaged 18 to 24 inches, making a total in all of about 20,000 trees. Besides these Norway spruce, the

Norway Spruce at the Belleville Nurseries.

A block of Norway Spruce growing in the Belleville nurseries is here shown. This variety of spruce is a very popular evergren from Europe which is being extensively planted in this conntry. It is valuable for wind breaks, screens and hedges, aud is well known as one of the best evergreens for ornamental purposes. (From a photograph taken specially for The Horticulturist).

stock of Austrian, Scotch and Swiss pine, Colorado Blue spruce, Pyramidal and American Arbor Vitae.

In other ornamental stock, Hydrangeas are very noticeable, being large and healthy and very productive of bloom of good quality. About 1,500 of these are in stock, and look well after the extremely severe weather last winter. Other varieties of ornamentals withstood the long winter equally as well with no protection, except what nature afforded. They include three or four kinds of Spireas, Syringa, Weigelias, Japonicas, of different colors; and climbing shrubs, such as Clematis, Honeysuckle, and Dutchman's Pipe. The last-named is hardy and of rare beauty. Another that is worthy of mention is the Trumpet Flower (Bignonia Radicans). This makes a fine show and is very productive of bloom when full grown. I am trying to get a line of perpetual bloomers," said Mr. Reid, and judging from the show of bloom following the severe winter with no protection, success is crowning his efforts.

WHERE THE LARGE STOCK IS GROWN.

A short distance east of the home nursery is a block of nine acres in large stock, of good average size and healthy appearance. The experience of the past eight years has shown that there are enough hardy varieties to make a good collection for any nursery, and so only hardy varieties of apples, pears, plums or cherries, are found in the Belleville nursery. The rest of the stock is produced on the Sydney place just out of the town. It, too, consists chiefly of large stock with some grapes and small stock.

"All my stock is grown right on my own place," said Mr. Reid, "and I use my own buds and scions. The only importations are seedlings, on which to bud the different varieties. This I consider important, as it leaves no chance whatever for the introduction of the destructive San Jose scale, or other scale insects. Besides the chances for sending stock not true to name are reduced to a minimum, as the trees off which the buds and scions are taken are known, and a careful plan of labelling is followed out until shipment is made. The results obtained by the Belleville nurseries are interesting, especially to people in northern sections. They show the varieties of stock that will endure winter hardships when in the nursery stage, and if these thrive until large enough to be sold, the older trees may be depended upon to be hardy and give good results. These nurseries have now secured a firm foothold in eastern Ontario. They may be expected to rapidly grow in importance, as the fruit and floral interests of the eastern portion of the province are now making noted advance.

Caustic Soda Not Recommended.—At the request of Prof. R. Harcourt, I tried the caustic soda wash last spring on a few infected peach trees, as a remedy for the San Jose scale. These trees I have examined from time to time, and find that the caustic soda has apparently had little effect on the scale, as these treated trees have all along shown about as many living scale as untreated trees alongside. I consider lime and sulphur the most effective remedy I have used.—(W. C. McCalla, St. Catharines, Ont.

Spot on Fameuse Apples.—"By proper spraying,' said Mr. Jones, of Maitland, to The Horticulturist recently, "I find no difficulty in keeping the Fameuse apples at least 80 per cent. free from spot, taking the results of one year with another. Last year 95 per cent. of my crop was free from spot. To accomplish this, however, I have found it necessary to spray frequently. Some seasons I have sprayed as many as six times, while in other years equally as good results have been obtained from three sprayings.

Hardy Hydrangeas as Grown at the Belleville Nurseries.

Hydrangea Paniculata, a hardy variety, has been grown with great success at the Belleville nurseries. It is one of the best of flowering shrubs. Bloom commences early in August and continues until late in the season. The flowers are pure white changing to pink making a fine effect. Both colors may be seen at the same time.

Plant Lice

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

What is the matter with two of my trees? They were grafted last year to Baldwins and trimmed this spring. In June the grafts were covered with a green louse, which looked like aphis, and lived on the bark of the young grafts. They were as thick as could be. One side of one tree is dead. The louse seemed to turn into a small fly. The trees were sprayed twice with Bordeaux and paris green.—(W. T. Nutt, Zenda, Ont.

The insects on your trees are no doubt aphides. They often appear in quantities on the young wood, as well as on leaves, when it is in a soft growing condition. Winged forms of the insect appear through the summer and spread from place to place. It is in this way that they are distributed.

The best remedy is to spray with whale oil soap or kerosene emulsion, which should be applied as soon as possible before the leaves upon which they are feeding curl over and cover them. Bordeaux mixture or paris green will have no effect upon them, as they suck the juices of the plant and do not eat the portions covered with paris green.

We hear a great deal of the Niagara district as "the fruit growing district of Canada," but I believe we have a section here that will compare very favorably with it for fruit production. When the fruit growers here once realize this it will be the means of stirring them to greater activity both in the care of their orchards and the planting of new ones.—(W. D. A. Ross, Kent Co., Ont.

WAYS TO PREVENT MICE INJURING ORCHARD TREES

W. T. MACOUN, CENTRAL EXPERIMENTAL FARM.

DEPREDATIONS by mice in winter are usually greatest when the orchard is in sod and when there is rubbish lying about ; hence the latter should be removed before the winter sets in. In most cases it is not necessary nor advisable to have the orchard in sod, particularly when there are young trees, although it is highly important to have a cover crop which is also sometimes a harbour for mice.

As mice may be expected every winter in greater or less numbers, young trees should be regularly protected against their ravages. Mice usually begin working on the ground under the snow and when they come to a tree they will begin to gnaw it if it is not protected. A small mound of soil from 8 to 12 inches high packed around the tree will often turn them, and even snow tramped about the tree has been quite effectual.

The cheapest and surest practise is to wrap the trees with ordinary building paper, the price of which need not be taken into consideration as it is so little. Tar paper is also effectual, but trees have been injured by using it and it is well to guard against danger. A little earth should be put about the lower end to prevent the mice from beginning to work there.

At the Experimental Farm we are using in addition to building paper, a wooden veneer which has been found very satisfactory both in protecting the trees from mice and from sunscald. Prof. W. B. Atwood, Horticulturist, Virginia Experimental Station, recommends a mixture of pure linseed oil and white lead to prevent the depredations of mice on apple trees, but does not recommend it except with caution for peach and cherry trees. He says that with 15 years' experience he has never had an apple tree injured by this application.

It is important to buy the white lead and pure linseed oil and mix them, as ready-made paints may have an injurious mineral oil in them. Prof. Atwood advises mixing the white paint and linseed oil to a consistency the same as for an outside coat on a building, and to put a heavy coat on the tree. He claims that once in two years is sufficient to apply. It is also useful in preventing borers. The mixture has been known to injure cherry and peach trees.

DOES CULTIVATION CAUSE APPLE SCAB?

R. J. MESSENGER, B.A., BRIDGETOWN, N. S.

I WANT to take issue with Mr. A. W. Peart, in his statement in a recent issue of The Horticulturist, that clean cultivation in the orchard promotes scab. He is quoted as saying "If anything green is on the soil it has a neutralizing effect on vapors arising from the soil, which tend to promote scab. I think the finest lot of apples sent to the Old Country last year came from an orchard which had been in oats, etc."

In the first place, Nature is so versatile and variable, that the close observer would consider it ridiculous to take one or two of her results and found a theory or law upon it. Some dozen other circumstances may have combined to make that oated orchard yield fine fruit, and since the oats were there, they were hit upon as the cause, when they may have had no effect on the result. This is just to show that too many of us are prone to jump to conclusions.

My knowledge of soil physics tell me that dry earth, such as the mulch formed by clean cultivation, absorbs noxious or other

vapours, while dry earth is used to prevent the escape of gases in manure cellars and closets.

It would, again, seem to me that no one can deny that cultivation creates a vigorous growth in any plant. The more we cultivate, the stronger, larger, healthier specimens we get, in apples, as well as vegetables and other plants; so that disease of any kind could scarcely have so much effect upon the cultivated ones as upon the uncultivated.

It is my opinion, based on observation for a period of some years, that as a matter of fact orchards with clean cultivation till the middle of the summer give cleaner fruit than those not cultivated.

The Horticulturist recently wrote Mr. Peart, asking for some further information on the subject. The following reply has been received:

"I doubt very much if I could add anything which would throw any light on the question at present, and I do not care to jump at conclusions. In order to see how it appears to work I am not plowing or cultivating two of my orchards this year. What has grown on them I have mown and left on the ground as a mulch. The third orchard I have ploughed and cultivated. I will try to note the difference if any, between the same varieties under disimilar conditions. I expect however, the cleaner fruit on non-plowed soil, but the larger on the plowed.

PEARS AND APPLES FOR PROFIT

"ON the right kind of soil I think pears are even more profitable than apples," said Mr. E. C. Beman, the well known pear grower of Newcastle, to an editorial representative of The Horticulturist, who visited his fruit farm during July. "A good clay loam with a deep clay subsoil is the best soil in this district for pear growing. Pears will not bear profitably on a cold sandy subsoil nor where the hard-pan is too near the surface.

"One reason why I prefer pears to apples is that an acre of pears on good land will yield more fruit than an apple orchard of the same size. If the soil is thoroughly adapted for their growth I believe pears will, in the course of a number of years, yield at least 50 per cent. more barrels than an apple orchard will.

"Near here, however, there are a few pear trees which are not doing nearly as well as mine, largely because the soil where tney are growing is not suitable. In regard to the returns secured I believe pears net the best prices. My Bartletts last year brought about $4 per barrel, and Willmotts about $2.50 per barrel. My best apples on the whole brought quite a little less than this. The demand for pears is very good, but not quite as strong as for apples. No more care is required in connection with a pear than with an apple orchard.

SOME COMMON TROUBLES.

"I have had considerable trouble with pear psylla and the green fruit worm. For the psylla I have sprayed the trees with a heavy mixture of lime whitewash. The mixture was as strong as the nozzle would spray. This was applied when the buds were commencing to open, and as a result I find it has lessened the psylla considerably. The trees were completely coated with the wash. For the green worm I have sprayed with the paris green and Bordeaux mixture and have found this treatment a great success. The spraying must be done early in the season just when the fruit is forming.

"Bartlett, Buerre Bosc, Duchess, Precoce and Clapp's Favorite are the varieties of pears that have given me the best results. They are all hardy.

Expert Apple Pickers Gathering the Crop in a Bruce County Orchard.

A busy scene in the eight acre orchard of Mr. W. S. Holmes, of Lucknow, in Bruce County, is here shown. The method used by Mr. Holmes is to barrel the fruit off the tree and put the apples under cover as soon as packed For that purpose a horse and boat or sleigh is kept for hauling the barrels under cover. In Mr. Holmes' opinion too many farmers pick their apples and pile them in heaps, which remain unpacked for days, sometimes weeks, in which condition the fruit is often seriously injured. Often after the apples are barreled they are left in the orchard subject to the weather. Apples used in this way almost always, Mr. Holmes believes, arrive at their destination in slack condition and sell at reduced prices. Two of the men shown in the illustration, Messrs. W. T. Holmes and P. Headley, are expert apple pickers.

SETTING AND CARING FOR PLUM TREES

MILTON BACKUS, CHATHAM, ONT.

IN digging holes for plum trees dig three feet in depth and fully as wide. Digging should be done in the fall, so as to obtain the benefit of the winter's freezing and thawing.

In setting the trees, stretch a fine wire the length of the row, having the distance apart marked on the wire with either paint or thread. In this way two men will set ready for filling a great number in a day. The distance they should be set apart depends, somewhat, on the system of pruning

I advocate low heads the shape of an inverted umbrella, severe winter pruning of from one-half to three-quarters of each season's growth. This prevents the trees attaining greater height than about 7 feet, so that pruning, spraying, thinning and packing can all be done cheaply by standing on the ground.

On receiving the trees from the nursery, I cut off the entire top to a bare stub not more than 2 feet long, and form therefrom a head having 5 to 7 branches. With the above system of pruning a tree, they should be planted not closer than 16 to 20 feet.

In regard to fertilizing, I have used only wood ashes, the land being naturally strong. Frequent and clean cultivation is best. I keep my orchard free from all fungous diseases, except the rot, by spraying as soon as growth begins, with sulphate of copper, and

again with Bordeaux mixture when the fruit has grown to the size of peas.

I have found it simply impossible to control the rot either by spraying, thinning, or pruning, especially in orchards where it has once become established, particularly if rains occur near ripening time. Good American authorities are of the same opinion. Regarding the curculio, I have had no trouble, having to practice thinning whenever there is not a failure of the crop; therefore the remedy I favor is the planting of quite an extensive orchard.

In the matter of varieties I should name the Imperial Gage as the most delicious of all plums, but a shy bearer. The Green Gage is a splendid variety, but a poor bearer. The Pond Seedling, a grand plum, but poor bearer. The Lombard, a rapid grower and a great bearer of fair quality plums. The Bradshaw comes late into bearing, and is a large coarse plum, while Coe's Golden Drop I find a great bearer of magnificent plums, and should consider it the most satisfactory one to plant. The Burbank is a great grower and an enormous bearer of handsome fruit. but like all Japanese plums, of poor quality when canned.

Cultivation and Sod in an Orchard

AN interesting method of treating an orchard is being tried by Mr. W. H. Gibson, of Newcastle, and was lately described to a representative of The Horticulturist who visited his place.

"When my trees are young," said Mr. Gibson, "I trim them so it is possible to cultivate beneath the branches. When they are older, cultivation under the branches is stopped. This spring I planted clover under the branches of my 11-year-old trees, which had been cultivated up to this year. The clover runs out as far as the limbs of the trees extend on each side of the trees. An open space between the rows of trees is cultivated. My idea is that the feeding roots of the trees extend beyond the branches and that they run out into this open strip of land which I cultivate. In this way the trees will receive the benefit of the cultivation, while the trouble of working under the branches will be avoided.

"About nine-tenths of the orchards in my vicinity are put into sod after they begin to bear. I intend to cultivate my orchard in the way described for several years to see how it succeeds. Where I have young trees planted I cultivate a strip of land on each side of the tree as wide as the tree is high, as I find the trees make twice the growth they do when grain or clover is allowed to grow close to them. I fertilize heavily, using 200 loads of barnyard manure in my orchards every year. The fertility of the rest of the farm is maintained by growing clover.

Shavings as Mulch in Orchard

PROF. H. L. HUTT, ONT. AGRI.COLLEGE, GUELPH.

Are shavings taken from a basswood or poplar tree good for mulch around apple trees in an orchard? Will they harbor mice or insects?

F. J. BARBER, Georgetown, Ont.

I AM somewhat dubious about advising the use of a mulch such as you suggest, although I do not see why it should not be better than allowing the trees to remain in sod with no cultivation whatever. I think it would be advisable to try it first upon part of the orchard and note results.

There is no doubt but that it will afford more or less of a harbour for insects, but these, of course, can be kept in check by the regular methods of spraying and banding the trees. Care should also be taken to guard against mice which no doubt harbour in such a mulch. Otherwise, I do not see that much injury can result, except that the roots would in time form more or less near the surface, which would not be serious were a proper mulch maintained.

MAINTAINING THE FERTILITY OF ORCHARDS

G. FRED. MARSH, CLARKSBURG, ONT.

NO less an authority than Alex. McNeill, chief of the fruit division at Ottawa, is in favor of oats as a cover crop. He says they come on quickly in the fall in spite of dry weather or trampling by apple pickers, and the fact of their dying in the fall is an advantage rather than otherwise, as there is nothing to prevent the farmer going on with the disc in spring.

From personal experience I can see the advantage of the above. In spite of all we may lecture, the fact remains that the average fruit grower only gets his orchards about half plowed before seeding, when he has to stop and bend all his energies to getting the spring seeding done. By the time the rush is over the land is hard, and if not, so hard that it is impossible to plow, the land has lost a large amount of its valuable moisture. If the orchard were seeded with oats there is nothing to prevent giving the orchard a couple of strokes with the disc before seeding, and the straw will prevent any damage being done by the tramping of the horses.

The question: "How shall we maintain the fertility of our orchards?" will be asked by all who heard Mr. Caston, of the Ontario Fruit Growers' Association, make the statement that a large number of the orchards, especially in the older sections of Ontario, are starving for lack of plant food, and that in many cases the deterioration of certain varieties is principally due to lack of food. A statement of this kind coming from such an influential fruit grower should cause us to pause and reflect on how we can economically provide this plant food for the trees.

Some say, use stable manure. That is all right as far as it goes, but is not a complete manure for orchards, having an insufficient amount of potash, and under our present system of growing leguminous cover crops, much more nitrogen than is necessary. But the chief argument against its use for the orchard is that no farmer has more stable manure he can apply with profit to his annual ordinary farm crops, and if he applies it to the orchard he must skimp some other part of his farm, which system, if followed for some time, will eventually run down the farm. Before we in Ontario run down our farms, we had better decide that

Portion of the Apple Exhibit at the Toronto Industrial Exhibition.

While disappointing in some respects, the display of apples at the recent Toronto Industrial Exhibition contained some excellent exhibits, some of which are here shown. The Bay of Quinte district advertised itself by capturing the first and second prizes offered for the best collections of 40 varieties, the first premium going to Mr. H. Dempsey. The first prize for the best collection of 20 varieties wus taken by Mr. H. Marshall, of Hamilton. A revision of the prize list so that commercial varieties may be given more prominence as desirable.

if fruit will not pay to buy fertilizer for, we had better dig up our trees by the roots and plant something else.

TRY LUCERNE CLOVER.

The next question would be, "What shall we use?" Those who are situated near towns can buy stable manure, but for the majority of farmers this is impracticable. Even in favorable cases it is doubtful if for large fruit it will pay for the reasons given above. In some cases, as with small fruits, poor land, or where a proper system has not been followed, it may be desirable for a time to use stable manures, but the successful farmer must get his nitrogen cheaper than paying 12 to 16 cents a pound for it, and he can obtain it for nothing by means of a leguminous cover crop. Of all the different crops advocated, I believe Lucerne clover to be the best, as it will make a better growth in the dry weather, which we usually have in the fall, and also a better root growth than the common red clover, which is favorably known for this purpose. Lucerne is subject to being winter-killed, but this makes little difference where it is sown to be plowed under in the spring. The hairy vetch is also highly recommended for this purpose. Don't sow too early in the season. Remember that it is a full apple barrel rather than a luxuriant cover crop which is wanted. I believe that in dry seasons the fruit grower loses an enormous amount by stopping the cultivator too soon, and as a rule cover crops should be sown a month later than usually advised. Never sow a cover crop until you feel sure that the apples are safe, even in case no rain comes until picking time. This system might not produce such a fine cover crop, but will produce more apples.

Leguminous cover crops will provide all the nitrogen necessary, but something else is required or we will ruin our fruit crop through unbalanced feeding. I firmly believe that the popularity of cover crops, together with the use of stable manure, has had much to do with the cry that Canadian apples are not keeping as well as they did in former years. We all know that an excessive amount of stable manure will grow a large, pale, soft apple, lacking in color, flavor, long-keeping qualities, and that indescribable element often called "snap," for which Canadian apples are noted. I know for a fact that dealers are beginning to keep records in order to find where the poor keeping apples come from. Thus we see we can provide ourselves with an abundant supply of nitrogen and humus, but we can not get in that way the potash and phosphoric acid which are also needed.

USE COMMON SENSE.

Experiment stations recommend a fertilizer containing 2 per cent. of nitrogen, 9 per cent. of potash, and 2 per cent. of phosphoric acid, but if a proper system of cover crops is followed I think we can leave out the nitrogen and use potash and phosphoric acid in above proportions. In order to obtain these materials "common sense" would teach us to use our own waste matters, that is, bone meal and wood ashes, which at present we ship across to the United States to improve the quality of their fruit. In bone meal the steamed will be found more economical than the raw, being less in price and having a higher percentage of phosphoric acid, though lower in nitrogen, which is no detriment in a properly managed orchard.

For the potash we should use the ashes produced at the farm, and in addition thereto the commercial potash salts, particularly sulphate and muriate of potash, which are very high grade, containing 50 per cent. of pure potash, while ashes contain only 5 per cent. on an average. Weight for weight, the potash salts mentioned are worth five times the value of ashes, and as a commercial article the former are usually a more economical source of potash than the ashes.

The Windbreak and the Orchard

IT has been a question, taking one year with another, whether windbreaks do the orchard more harm than good. If there is not much wind during a season, a windbreak may injure the orchard by preventing circulation of air. There is nothing so beneficial in an apple orchard as a full movement of air and plenty of sunshine, Wind breaks often shade the adjoining row of trees and in that way retard their growth, and reduce their fruitfulness. These views were expressed to The Horticulturist not long since by Mr. William Rickard, M.L.A. of Newcastle.

"A windbreak," continued Mr Rickard, "on an exposed side, if properly constructed, is decidedly a benefit. In every case, the windbreak should be so constructed that it will not shade the trees. In a windy year, a good windbreak will undoubtedly be of great benefit.

"The best place a Spy apple can be grown is right out in the open, where it will get all the air and sunshine possible. On the whole, in the average apple orchard, I believe the chances are that as good results can be obtained without a windbreak as with one."

The Best Sized Box

AT the last annual meeting of the Ontario Fruit Growers' Association at Leamington a resolution was passed favoring the bushel box for packing apples. Speaking on this subject to an editorial representative of The Horticulturist, who visited his place, Mr. A. W. Peart, of Burlington, recently said:

"The minority opposed the motion on the ground of scarcity of labor. The most suitable box for the old country trade is 9 x 12 x 18 inches, inside measurement.

"With these boxes women can sort, pack, press, stencil and pile ready for shipment to the station. If you increase the size you increase the difficulty of women doing the work. In fact, some women even object to the weight of the small box. If we cannot secure women, we must get men at double the pay per day, whereas women do the work just as efficiently.

"Some of those favoring the resolution claimed that larger boxes can be shipped as cheaply as smaller ones, but this is not so, inasmuch as on the cars the box goes by weight, and on the ship by cubical contents. I find that the smaller box is best for shipping apples and pears to the old country."

The Exhibit of Pears at the Toronto Industrial Exhibition.

The exhibit of fruit at the Toronto Industrial Exhibition this year was rather disappointing as it was not as large or, on the whole, of as good quality as usual of late years. This was in part due to the injury to orchards caused by the severe weather last winter and to the cool backward summer which had prevented much of the fruit maturing. A portion of the pear exhibit is here shown. Among a few of the more successful exhibitors were Messrs. F. S. Ferminger and W. S. Bunting, of St. Catharines; G. W. Wild, of Hamilton, and F. G. Stewart, of Horner. A new building is greatly needed.

An Apple Tree That Has Died, and Why

PROF. W. LOCHEAD, ONT. AGRI. COLLEGE, GUELPH.

I have an orchard of about 150 apple trees, and one of them has not borne any fruit for three years Some people say it has the San Jose scale, while others say it is the death sweat. Not knowing for certain what it is, I send you a portion of the tree to see if you can tell me what the trouble is

W. J. SKIDMORE, Cornwall, Ont.

THE white bodies which you send are a very sure indication of the trouble with your trees. These bodies are fleshy fungi, very similar in structure to ordinary mushrooms, but, of course, much smaller. They are known scientifically as Schizophyllum comune. They are very common on the trunks of many varieties of trees. I have found them frequently on shade trees.

Their presence on the trunk of a tree shows that the tree is badly diseased, and is now beyond recovery. No wonder your tree has borne no fruit for the last three years. Many years ago the spores, or minute seeds which this fungus produces, were blown to this tree, and lighting on some wound or crack, affected an entrance into the interior of the tree. During all this time the fungus threads have been growing, and have been injuring the tree and killing the tissues. After the harm has been done the fungus threads make their way through the bark to the outside and there produce the characteristic white bodies which produce the spores.

If you will examine with a microscope a scraping from the small gills on the under surface of one of these white bodies, you will probably find many small round objects —the spores. You have probably seen large toadstools on the trunks or stumps of old trees. The bodies which you send me are of a similar nature to these large toadstools. They have done all the harm they can before they show themselves on the surface, and there is no use in attempting to cure the disease. The best thing that can be done would be to cut down the trees which show these white bodies and have them burned. Do not allow them to lie about on the ground for they may spread their spores and infect other trees.

Spraying to Prevent Injury By Mice

Is there any cheap and effective spray for field nursery stock applied before or after the first snow, to prevent mice girdling trees?

W. C ARCHIBALD & SONS. Wolfville, N. S.

THE above question has been answered as follows by W. T. Macoun, of the Central Experimental Farm at Ottawa. There is no cheap and effective spray for nursery stock that I know of which can be applied before or after snow, to prevent mice girdling trees. The best preventive is to have the nursery clean in the autumn and from 25 to 30 feet round it. Mice are seldom troublesome where there has been clean cultivation, and no sod nor rubbish near the nursery. If the nursery is not large, each tree might be wrapped with building paper which is very effective in preventing the depredations of mice

Another reply to this question has been furnished The Horticulturist by H. S. Peart, of the Agricultural College at Guelph, he writes, "There is no spray which can be recommended as a certain preventive against mice in the nursery. A wash may be made of one peck of fresh lime slacked in enough soft water to make it of the consistency of whitewash, to which is added while still hot, one half gallon of crude carbolic acid, half a gallon of gas tar and four pounds of sulphur. Stir well. This sprayed on the trunks of the trees in autumn will to a great extent, prevent mice from girdling. Clean cultivation, which keeps down all grass and weeds, will prevent the mice from harboring around trees, thus diminishing the danger of attacks.

FORECASTING FROSTS

PROF. J. B. REYNOLDS, ONT. AGRI. COLLEGE, GUELPH.

A SIMPLE method by which fruit growers can forecast frosts is by means of the Sling psychrometer, the same instrument as is used in determining the humidity of cheese curing rooms. It is a wet and dry thermometer mounted on a frame and attached to a cord for the purpose of swinging it through the air and obtaining the correct reading. Such an instrument, with a proper set of printed tables giving the dew point in connection with the readings of these thermometers, is a fairly reliable method of forecasting frost. For instance, if the reading of the thermometer indicates by the printed tables the dew point of 40 or below, about sundown, there is danger of frost, especially if the sky be clear and the atmosphere still.

USE THE WEATHER BUREAU.

I am inclined to think, however, that the most satisfactory method of prediction is the weather bureau. The weather bureau of the United States, is doing very important work in this connection by warning the fruit growers in California and elsewhere of the probability of frost. If our weather bureau at Toronto could devise some practicable means of communicating with the fruit sections during the day when the prediction is made, the same purpose could be served. I have no doubt that this arrangement will be made in the near future but I think that the movement must originate with the fruit grower. If he expresses a desire to have the forecasts announced to him and an intention to act upon forecasts, and take measures to prevent injury by frost, I have no doubt that the weather bureau would respond willingly and readily to the request. The fruit interests of southern Ontario would be well served by a proper discussion on this subject.

Grape Growing in Eastern Ontario

"I CONSIDER that I have fair success in growing grapes even at this northern latitude," said Dr. McCallum, of Smith's Falls, to a representative of The Canadian Horticulturist, who recently visited his place. "Worden, Delaware, Agawam, Niagara, Moore's Early, Lindley, and Salem," continued Dr. McCallum, "all thrive well here and are productive. Of course they have to be laid down in the winter, and special protection given them. I cover the vines with earth in the fall after the leaves have fallen, before the first heavy frosts come, and leave them there until spring opens, and the weather seems settled. Niagara and Salem are very late ripeners. The Lindley, Salem and Agawam are good keepers. I pack these in cork dust for winter, and have grapes for table use as late as April. With a little special attention," concluded the doctor, "grapes can be grown here as well as in the Niagara district."

Care of Raspberry Bushes

D. BETTSCHEM, VIOLET HILL, ONT.

I PREFER the Cuthbert variety of raspberries to any other. It is hardy, stands the winter well, is very productive, of good rich flavor, and sells well. My bushes are planted in rows about five feet apart, and three feet apart in the rows.

All old canes are taken out after first season is over, and all canes are pruned down to four or five feet high. Strawy manure is used with straw for a mulch, using straw last to keep the fruit clean. A small quantity of wood ashes is also used as fertilizer, which I think is very valuable for this purpose.

FALL FRUITING STRAWBERRIES

ARE there any varieties of strawberries that can be relied on in Ontario to produce crops in the fall? Apparently not. Leading growers in the province who have been consulted by The Horticulturist, all state they have never been able to obtain regular crops of strawberries in the fall although occasionally they have succeeded in securing a few berries. In the United States some growers claim to be able to secure berries regularly every autumn.

Writing to The Horticulturist on this point, Mr. W. T. Macoun, Horticulturist at the Central Experimental Farm, Ottawa, says :

"The year 1903 was particularly favorable for an autumn crop of strawberries, and the question of autumn fruiting varieties received quite an impetus, but in our 16 year's experience at the Experimental Farm we have not found that any variety of strawberry produced enough fruit in the fall to make it worth growing for that purpose."

According to Charles H. Snow, Strawberry Specialist, Cummings Bridge, Ont., the fall fruiting of strawberries is not attached to any one variety. "Clyde, Haverland, Beder Wood, Sin, Dunlop, and Enhance," writes Mr. Snow, "possess this freak at times, and to my knowledge only when the plants have suffered some injury at the proper time for fruiting. During the year 1903 for instance, the month of May and June were excessively dry around Ottawa. The plants blossomed but never made any fruit to amount to anything. The fruiting propensities of the plants had been strongly restricted, and when the rains came about July, the plants shot up, a fresh beautiful green foliage appeared and many strong fruit crowns. The result was that during the latter part of September and previous to fall frosts, we picked quarts of fine luscious berries off numerous varieties. Enhance has had this reputation for fall fruitage, but after growing it for 15 years, only once in that time have I noticed it fruiting in the fall."

Profitable Patch of Blackberries

"ONE and a quarter acres of blackberries have for ten years past yielded us an average of $200 per acre," said Mr. A. E. Kimmins, manager for Mr. E. D. Smith, the well known fruit grower of Winona, to an editorial representative of The Horticulturist recently, who was visiting his place. "The berries are all of the same variety, namely, the Kittatinnies. The land has been given no particular cultivation, simply receiving the ordinary cultivation, consisting of plowing and the use of the horse cultivator. The bushes are set six feet apart so they may be cultivated readily.

"In the fall the old wood is removed and the bushes are trimmed back in the spring, generally in May. This variety of berry is about the most profitable in our section, but outside the peach belt will probably be found to be rather tender. Twelve years ago the land on which these berries are now growing was an old pond bed, filled by a spring. Mr. Smith decided to drain it, which was done at moderate expense. The investment has certainly been a profitable one."

"I do not plow my vineyard in the fall, because it exposes the roots too much to the winter frosts. I plow in the spring, and harrow and cultivate until the middle of August. Nature is then left to attend to it until the following spring."—(A. W. Peart, Burlington, Ont.

We trust The Canadian Horticulturist will continue to improve, as we consider it an authority on horticultural matters.—(J. A. Simmers, seed merchant, Toronto, Ont.

SELECTING GROUND FOR A STRAWBERRY BED

MRS. JOHN GILFILLAN, KIRKTON, ONT. *

IN locating a spot for a strawberry patch, bear in mind that the strawberry is a surface feeder and consequently easily injured or killed by a surfeit of water, or during a severe drought. The land should be well drained and which has been previously planted to hoed crops, so that weeds will give as little trouble as possible. Plow the ground in the fall and again in the spring, while in the meantime a liberal coat of barnyard manure should be given. The plot should be thoroughly cultivated after having been plowed. It is then ready for marking out, which may be done in various ways, with whatever the planter has convenient for the purpose.

Cover strawberry plants in winter, after the ground is sufficiently frozen. A covering of straw or some such material is desirable to keep the ground from freezing and thawing with every change of weather. This covering should be removed from the plants as soon as all danger of severe frosts is over, and placed between the rows. It will conserve moisture so necessary at the growing season, keep the berries from being sanded and also smother out the weeds that would otherwise make their appearance.

The Best Sized Greenhouse

"WHAT is the best sized greenhouse for the ordinary florist to build?" was one of the interesting questions found in the question box at the recent meeting of the Canadian Horticultural Association convention held in Ottawa. Mr. O. G. Johnson, of Kingston, in replying to the question said, "The size of the greenhouse to be built must depend altogther on how much money the builder has to spend.

"I would suggest that the width of the house be at least 17 feet, and should extend north and south, with a three and a half foot raised bench each side of the house two and a half feet from the floor. A middle bench or solid bed should be six feet wide. Two paths two feet wide each should extend down the center of the house. The ridge should be eleven feet high, with ventilators 2 x 3 feet each placed 6 feet apart, eight in number, on each side of the house, opening at the ridge. The walls should be four feet high.

"This is not a modern house by any means, but one that is suitable for almost everything that an ordinary florist would need in any small town, with the exception of roses and violets. The best house to build is constructed on these principles, with the exception of different minor arrangements and the number of ventilators.

"In such a house as described, I successfully raised ferns, begonias, fuschias, hydrangeas, and a great many other plants which like a little shade. On the middle bench I grew a mixed variety of geraniums, lilies, carnations, smilax, etc. The east bench was an ideal one for geraniums, pelargoniums, etc. It does not matter so much which way the house is built for the general stock of an ordinary florist, as it does on the man who is in the house. If the builder of the up-to-date modern greenhouse could only build an up-to-date modern florist and throw him in with the greenhouse what a boon it would be."

Do you not think it would be a wise and profitable move on the part of public school boards if a part of every school yard were to be set apart and planted with at least a single specimen of every tree that could be grown in the locality? What an object lesson it would be for the children, and what an improvement it would effect in the appearance of the school grounds.—(P. G. Keyes, Ottawa, Ont.

* Extract from a paper read at a Woman's Institute meeting.

OCTOBER PLANT NOTES

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

OCTOBER usually gives us ideal ripening weather for plant life. Too often this matter of plant ripening is lost sight of by plant lovers, in their anxiety to protect their favorites from the first sharp frosts of Autumn ; and place them in security for the winter months.

Plants such as pot hydrangeas, oleanders, fuchsias, tender roses in pots, dahlia and canna roots, etc., are frequently hurried off on the first sign of frost into the unsuitable and unnatural conditions they often have to endure during the winter, without being properly ripened or hardened off before being stowed away. This ripening, or hardening, is very necessary for the successful wintering over of plants that have to be kept in a dormant or semi-dormant condition during the long winter months.

The half-hardy hydrangeas grown in pots and tubs, that make such conspicuous and showy decorative plants during the summer, are often killed out or severely injured by being hurried into their winter quarters—oftentimes in the cellar or basement—without the growth being first properly hardened off or ripened. It is quite possible, if the season is at all favorable, to keep hydrangeas underneath a veranda, or in a shed or out building, until November, if temporary protection be given them on extra cold nights. Five or six degrees of frost at this season of the year, after the plants have done flowering, will not hurt, but rather benefit them, as they are of a decidely semi-hardy nature. Less water should also be given at this season than during the summer. By withholding gradually the amount of water,

Two Popular Varieties of Plants as Grown in a London, Ont., Greenhouse.

Beds of Begonia Glorie D'Lorraine on the left hand side and Cyclamen on the right hand side, are here shown as photographed in the greenhouse of Messrs. J. Gammage & Sons, of London, Ont. These plants are among the most satisfactory that can be grown in the house during the winter. They begin flowering early in November and continue to bloom until late in the spring. No more attention need be given them than any other house plant. Care should be taken to see that they are not allowed to become too dry as otherwise the flowering season is retarded and the flowers become small and of poor texture, both in color and substance. Attention is also required to see that they are not over watered, as such treatment tends to sour the soil, causing the Cyclamen to take a fungous disease which usually affects the plants in the form of the bulb decaying and becoming soft at the top. The leaves and flowers finally drop off. In the case of the Gloire D'Lorraine, the foliage turns yellow and the leaves drop off. The Cyclamen comes in many colors, principally red, pink and white. The Begonia has only two colors, a deep red and a light pink.

this ripening or hardening off process may be materially facilitated. Do not go to the extreme however in this respect, as the soil should never be allowed to get thoroughly dried out before water is given again. Extreme conditions of any kind are usually very dangerous to plant life. In this matter of giving less frequent waterings to plants, it is quite as necessary to avoid extreme dryness of the soil, as it would be to avoid over-watering, while endeavouring to induce a period of semi-dormancy or partial rest.

The variety of hydrangea mostly grown in pots or tubs is the large pink flowering "Otaksa." Another good variety of these half-hardy hydrangeas is the white flowering variety "Thomas Hogg." A good specimen of this is seldom seen even at floral exhibits, probably from the fact that it is less robust than "Otaksa," and harder to winter over successfully. It is a very pretty variety, and makes a pleasing contrast to the pink flowering one.

OLEANDERS, POT ROSES, FUCHSIAS.

ALL of these plants will bear a little wholesome neglect at this time of the year. That is, they may be left to take care of themselves more than when in full growth during the summer. They will not, however, bear quite as severe treatment in the matter of being frozen, or in the partial witholding of water from the roots, as will hydrangeas. As these plants, however, have, in most instances, to be kept in a semi-dormant or resting condition during the winter, they will be benefitted very much by being treated as recommended for the hydrangeas, before being consigned finally to their winter quarters.

Canna roots should be dug up as soon as the tops have been blackened by frost. Unless the autumn season is exceptionally fine and warm and free from frost, canna roots will be better dug up before the surface of the ground has been touched by frost. If it is impossible to dig them before sharp frosts occur, cut the tops off to within about four inches of the ground, and strew the tops over the ground. A few inches in depth of straw or long manure, or any material to keep the frost from touching the tubers, should also be thrown over them as a temporary covering. After digging, store the roots for a week or two in a shed or out-building safe from rain and frost, until the soil adhering to them has partially dried out. Remove them to a warm room or cellar where the temperature ranges from about 40 to 50 degrees. A continuously low temperature near the freezing point will injure canna roots permanently, even when dormant.

Dahlia roots should be dug up before the tubers are touched by frost, and treated as recommended for canna roots, before being stowed in the cellar. Dahlia roots will keep better in a more moist cellar or room than will canna roots. A temperature from 35 to 45 degrees will suit them better than a higher temperature. Wherever potatoes will keep in really good condition through the winter, dahlia roots can be preserved. A dark, cool cellar if not too dry, suits them splendidly. If the cellar is very dry, as many cellars are from having a furnace in them, the roots of both dahlias and cannas would be better preserved if some dry soil or sand were to be placed around and about the tubers. Enough of these materials to barely cover the tubers would be sufficient.

October is the great bulb-planting month. As soon as your flowers are frozen prepare the beds for bulbs. In some cold districts people are afraid to plant them outside. Try them ; they will grow where weeds will grow.—(N. S. Dunlop, Montreal, Que.

BULB CULTURE FOR THE AMATEUR *

THE culture of bulbs indoors is one of the most delightful pastimes in winter and there is nothing in floriculture which so well repays the lover of flowers for the money invested, and for the time and care spent upon them. By having the right varieties, and by forcing them properly, flowers may be obtained from the latter part of November until spring.

The mistake has often been made by those who have written on bulb culture for the amateur, that too much stress has been laid on the kind of soil in which the bulbs are to be grown, and definite proportions of sod, manure, leaves, and soil have been recommended without giving any alternative to the intending planter. The difficulty in cities of obtaining these ingredients has no doubt deterred many people from growing bulbs who would have done so if it had been made plain to them that they could have good success without preparing the soil in the exact way laid down. The bulb has within it the future flower, which was formed during the previous spring; it has also food and energy stored up in it ready to be used when the right conditions are brought about, which are : first, moisture to produce roots, and then sunshine and heat to develop the leaves and flowers. While the bulb does, no doubt, take up plant food from the soil when forced, roots and moisture are of far greater importance. A soil should first of all be porous, so that air is admitted freely to the roots ; a soil which becames compact and hard is the poorest kind. It should also retain water fairly well, and for this reason it is well to have some humus, which is supplied by rotted leaves, rotted manure, or rotted sod. Good loamy garden soil is quite satisfactory without the addition of any fertilizer, but if it is soil that becomes compact, it is advisable to add a little coarse sand to make it more porous. Where soil is difficult to get excellent results have been obtained by using pure building sand for this purpose, which, being coarse, is porous, and does not become compact. This must not, however, become confounded with the ordinary fine sand, which is not satisfactory.

PLANTING.

The bulbs should be planted as soon as received, or not later than the middle of October. As a good root system is very essential, the earlier the bulbs are planted the better, as most bulbs take from six weeks to two months or more to fill the pots with roots. Successive plantings are not recommended, as the bulbs lose vitality the longer they are out of the ground.

Hyacinths succeed best in five-inch pots, or if pans are used, several bulbs may be planted in one pan. Three tulips in a five or six inch pot are very satisfactory. Most of the narcissus also succeed well with three bulbs in a six-inch pot, but some of the larger bulbs are more satisfactory with one bulb in a five inch pot. Seven or eight freesia bulbs may be planted in a six-inch pot with good success, and other small bulbs in the same way.

To plant the bulbs, put a piece, or several pieces, of broken pot or charcoal, or even coal clinkers, in the bottom of the pot or pan with soil, and shake it down by striking the bottom of the pot against something, but avoid pressing down the soil in the pot before planting the bulb, as if the soil in the lower part of the pot is firm, the bulb will be forced out of the pot when it begins to root. Now, place the bulb or bulbs on the surface of the soil, making certain to have the right side up, and press down until the upper side of the bulb is on a level with the surface of the soil, then firm the soil about

* Extract from the special bulletin on Bulb Culture recently issued by the Ottawa Horticultural Society, and mentioned elsewhere in this issue.

each bulb with the fingers, and level the surface. When the bulbs are planted, the soil should only come to about half an inch of the top of the pot, so when watering there will be room for a good supply.

ROOTING.

The proper rooting of the bulbs is, perhaps, the most important feature in the successful culture of them. The recommendation is frequently made to give the bulbs a thorough watering at the time they are planted, keep them in the cellar or some cool place for six or eight weeks, and then begin to force them. This advice, without more explicit directions, has been the means of spoiling thousands of fine blooms. There are hundreds of people who have no place to put their pots, while the bulbs are rooting, except the coolest part of their cellar, in which is a furnace, which keeps the air as dry almost as upstairs ; and even a cool closet is sometimes the best place that can be found. The result is that the amateur who has had no previous experience, or who has not learned the cause of previous failures, gives his bulbs a thorough watering, as recommended, thinks all will be well, and he is led to believe this by seeing the shoots pushing up. When he tries to force his bulbs, he finds that something has gone wrong, but he does not know what it is. What has really happened? The air of the cellar being dry, the soil in the pots has gradually dried up, so that by the end of a couple of weeks, or perhaps more, it is apparently quite dry and not suitable for the developement of roots, and they do not develop, and perhaps some roots which had started have dried up again. One watering is sufficient where pots can be kept in a cool, moist place, but they should be watered once a week, and if necessary, oftener, if they are kept in a dry cellar. The soil should not be kept soaked at first, as bulbs, when in the dormant condition, are likely to rot if kept too wet. The soil should be kept moist, not wet. If through careless planting the bulbs push up when they begin to root, the best plan is to repot them, rather than attempt to push back the bulb into its place. When rooting, the bulbs should be kept in a dark place, between 35 and 40 degrees F., if possible, and if they cannot be kept as cool as that, the lower they are kept above this the better. If kept in a high temperature, growth begins above before there is a good root development, and this is something that should be avoided, if at all possible. Furthermore, unless kept very cool, the bulbs will make too much growth, it will not be possible to keep them back, and the bloom will be over before the end of the winter.

VARIETIES RECOMMENDED.

The following varieties are recommended: Early spring tulips, for the house.

Chrysolora, height 11 inches, golden yellow ; Keizerskroon, 14 inches, crimson-scarlet, with broad yellow margin; Joost Van Vondel, 10 inches, crimson, flaked with white, large flowers ; Joost Van Vondel, (White) 10 inches, pure white, large flowers ; Proserpine, 12 inches, rich rosy carmine ; Vermillion Brilliant, 10 inches. bright vermillion ; La Reine, white, becoming delicate pink ; Cottage Maid, 9 inches, white, bordered with rosy pink ; Duchesse de Parma, 13 inches, orange-red, with broad yellow edge ; Thomas Moore, 14 inches, orange, sweet scented ; Van der Neer, 10 inches, violet ; Standard Silver, 10 inches, white, feathered with crimson.

Early Doubles.—Couronne d'Or, orange-yellow ; Murillo, blush-pink ; Imperator Rubrorum, crimson-scarlet.

Hyacinths, Single Pink.—Charles Dickens, rosy-pink ; Baron Von Thuyll, fine pink ; Gigantea, blush-pink, large spikes.

Single Red.—General Pelissier, deep crimson, early ; Lord Macauley, rose, with carmine stripes.

Single Blue.—Blondin, porcelain-blue, large bells; Queen of the Blues, light silvery-blue ; Grand Lilas, fine porcelain-blue, large spike, the best blue ; King of the Blues, deep glossy blue.

Single White—Baroness Van Thuyll, fine white, compact spike, early ; Albertine, pure white, early ; LaGrandesse, pure white, the best white.

NARCISSUS FOR THE HOUSE—IN ORDER OF FORCING.

Single.—Chinese Sacred Lily, white, with yellow cup ; Paper White, pure white ; Trumpet Major, yellow perianth and trumpet ; Golden Spur, yellow perianth and trumpet; Emperor, large trumpet, yellow; Trumpet Princeps, sulphur-yellow perianth, yellow trumpet ; Horsfieldi, white perianth and yellow trumpet ; Sir Watkin, sulphur-yellow petals, large cup, yellow tinged with orange, sweet scented; Parri Conspicuus, pale yellow petals, cup orange-scarlet, sweet scented; Bicolor Grandis, white perianth and yellow trumpet.

Double.—Van Sion, Double yellow daffodil; Sulphur Phoenix, beautiful creamy-white, sweet scented.

A Glimpse Into One of Perth's Lovely Gardens.

The above illustration shows a lovely walk in the garden of one of The Horticulturist's readers located in Perth. There are four of these walks in this garden, the one shown being about 115 feet in length. This garden has been laid out since the first settlement of the town and is not unlike many old Scotch and English gardens. It is in the very middle of the town with a narrow frontage on the street enclosed by a stone wall and runs irregularly in the centre of the block in squares of fruit trees and vegetables. The borders of this walk as well as the other three, are filled with roses and lilies, pœnies, ires, phlox, dahlias and many other flowers. In midsummer sweet peas fill in many gaps and a veritable bower of beauty is the result. Meetings of the Perth Horticultural Society are sometimes held in the garden during the summer and always prove interesting.

Plantain and Lilac Bushes

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

Is there any way to rid a lawn of plantain other than by digging up each plant separately? If so, what should be done? How can lilac sprouts, which spring up around and some distance from lilac bushes, be eradicated?—(Miss F. G. Phelps, Mohawk, Ont.

There is no practicable way of getting rid of plantain in a lawn except by spudding out each plant separately. This may require considerable patience and perseverance, but if persistently followed they can in a short time be eradicated. Suckering lilacs can only be kept in bound by digging up the suckers as they spread. Some varieties spread in this way much worse than others, and where the bushes are not specially desirable varieties, it may be well to dig them out entirely and plant others not so likely to spread by suckering. It is difficult to give information as to which varieties are most subject to suckering, as various kinds are used for stocks upon which the choice varieties are budded.

The Best Way to Grow Violets *

WM. FINDLAY, BRAMPTON, ONT.

AFTER growing violets for ten years I find I am learning their habits better every year. Sand rooted cuttings are the best, as the grower gets a young sappy growth to start plants from. I root my violets very slowly, taking runners from only the best plants of both the single and double varieties, especially the latter. Stock should never be taken from a poor plant, and only the strongest runners should be selected. After the cuttings are well rooted prick them off on a bench, but not so close together that they will be crowded when planting out time comes. My method is to plant singles in the field in May and doubles in the bed where they are going to stay for the next season's crop. I have found to my sorrow that the double violet is a very slow root actor. This is not the case with the singles, as it is hard to kill them.

Violets require good drainage. More *violets are spoiled by over watering than* through lack of water. Never let the plants go to bed damp. Water only on bright days. Keep the house at from 38 to 40 degrees if good color and plenty of fragrance are desired.

A good violet should have a stem 12 to 14 inches long, with a bloom not smaller than a half dollar. The stem should hold the bloom upright. If a grower desires quantity, not quality, the greenhouse should be kept at 48 to 50 degrees. This will result in plenty of nice foliage and pale blooms with weak stems. I plant doubles 9 to 10 inches apart and singles 10 to 12 inches, according to the size of the plants. I have often been asked what a good cut for my house is from February 1 to February 29. This year I cut 64,775 violets, and next season I expect to have four times as many.

*Paper read at the annual convention of the Canadian Horticultural Association held in Ottawa during August.

Something About 'Mums

TO obtain the best results with chrysanthemums they should, according to Mr. E. Dale, foreman of the extensive greenhouses on the Dale Estate, of Brampton, be benched in the latter part of June. After that they must be watered freely and never allowed to become thoroughly dry. It is also very important that the tying up should be attended to, never allowing them to lop over.

"I plant my chrysanthemums," said Mr. Dale, to The Horticulturist recently, "six inches apart each way, and find that at this space two good blooms can be grown to the plant. When the plants are in good free growth I pinch back and afterwards leave the two best breaks that are made. As soon as the buds are formed I use a liberal supply of manure-water once a week. After this I watch carefully to see that the budding is done properly and that only one bloom is left to each stem.

"When handled in this way, chrysanthemums bloom from September 15 to December. The black aphis is a very troublesome pest here and can only be kept in check by spraying frequently with nicotine solution. My leading varieties for commercial purposes are: Glory of Pacific, Polly Rose, and Fitzwygram for the early; Ivory, Ivory Rose, Henderson and Lager for the mixed season; Vivian Morel, Nivens, Timothy Eaton and Whilliden for the late; and Merry Christmas, Autumn Glory, W. H. Charwick and Polar Queen for the very late varieties."

Flower culture is worthy of a place in the thoughts of those who have the welfare of any community at heart. A few flowers, carefully attended, in the window, or patch of garden, show love of the beautiful and sweet, and are a helpful factor in the fulfillment of social duties.

WINTERING OVER OLD GERANIUM PLANTS

WM. HUNT, ONT. AGRI.COLLEGE, GUELPH.

There are several methods by which geranium plants can be carried through the winter successfully ; but like other matters connected with the care of plants, much depends on local conditions, etc., where the plants are to be kept, and the care they receive. The best method for those who are without the aid of a greenhouse and wish to preserve their old geranium plants is to dig them up from the border before being frozen, and then prune them back severely. The plants should then be planted in sand, in boxes about three inches deep, with a few one-quarter inch holes bored in the bottom for drainage. Fine sharp building sand, or sharp rinse sand from the side of a road, will do very well. The plants should be planted a little deeper in the sand than they were when in the borders, and can be planted rather thickly in the box. If only one or two plants are to be kept over, they can be put singly into small pots just large enough to crowd the roots into, usually a three or four inch pot is large enough when the roots are trimmed back. Give sufficient water to moisten well all the sand in the boxes or pots. The boxes or pots should then be stood in the window and the sand kept only moderately moist.

Avoid keeping the sand really wet all the time. Leave the plants in the sand until the young growth or shoots have made three or four small leaves at the joints of the old stems. Examine the roots then and see if young roots have well started ; if so, each plant should be potted singly into a mixture of half sand and half potting soil, in small 2½ inch or 3 inch pots

The plants will usually stand in the sand very well until January or February, if not given too much water before they require potting. The plants can remain in the small pots for a month or two, when they can be potted into good potting soil and placed in pots two sizes larger. I have known large collections of geraniums kept over successfully in the above manner. Plants treated in this way often make better plants than when struck from cuttings.

Another method is to put the boxes or pots with the plants treated as before described, in the cellar or basement at once, instead of growing them on. The sand must be kept much drier if this method is adopted, as the plants must not be allowed to start into growth until February or March, when they can be brought up and potted in sandy soil as before described, and be kept in the window and grown on.

I have known old geraniums to be cut back in the autumn and merely heeled in sand or sandy soil in the cellar. If the cellar is kept at a temperature of 45 or 50 degrees or even warmer, the plants treated by the last two methods described will usually succeed fairly well. The one great point to be gained is to keep the roots and stems alive without inducing a too rapid growth. When once new roots are well formed and growth commences, no matter whether the plants are in the cellar or the window, they must be potted on and kept growing.

Geranium plants can often be preserved by the above methods, even after the tops of the growth have been badly frozen. The plants must not be handled however, when the frost is still in them.

If pansies are wanted for early spring, seed should be sown not later than early September, in a shallow box, in fairly light soil. When plants are large enough to handle, plant out in a light, rich well drained soil in a shaded frame, facing the south. A sash should be placed over them in very severe weather.—(Wm. Hunt, Guelph, Ont.

Planting Bulbs

WM. HUNT, ONT. AGRIC. COLLEGE, GUELPH.

About the second or third week in October is usually the best time for planting bulbs out of doors, more especially Dutch hyacinths and narcissi. Roman hyacinths do not as a rule give good results planted out except in the warmest sections of southern Ontario, so that I do not advise planting Roman hyacinths outside. Tulips, Crocus, Scilla siberica, and Chionodoxas are amongst the hardiest of the bedding out bulbs, and are often planted out with good success just as winter is setting in, but usually all of the out-door planted bulbs are better planted in October.

Dig the soil deeply where they are to be planted, and rake it fairly fine. Hyacinths, narcissi, and tulips should be planted so that the top or apex of the bulb is about two inches below the surface when the soil is covered over them. Crocus, scilla, chionodoxa and snowdrops should be planted so that they are covered with about an inch of soil. The surface of the soil should be patted down fairly firm with a spade after the bulbs are planted, more especially if the soil is of a light sandy nature.

Horse Lawn Mower

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have been led to believe the Guelph college has a one-horse lawn mower. If it is such as you can recommend, please say where one similar to yours can be purchased, and the cost. —(J. L. B., Kingston.

We use on the college lawn the Excelsior horse lawn mower, made by the Chadborn & Caldwell Manufacturing Co., Newbury, N. Y. They make these mowers in three sizes, namely 30, 35 and 40 inches wide, prices $60, $67 and $75, to which, of course, must be added freight and a duty of 35 per cent. I know of no cylinder horse mower of the kind made in Canada, although the Massey-Harris Co. make an excellent small one-horse mower, with cutter bar, like the ordinary field mower. This can be obtained for less than half the price of the American mower, and would probably answer your purpose very well, although it will not cut as close as the cylinder mower.

An October and November Flower.

The plant growing in this novel manner as shown in the cut above, is Cattlya Labiata, one of the species of Cattlya first introduced. The flowers are very large, often six inches in diameter and three or four flowers on a spike. Broad rose colored sepals and petals with a rich majenta lip, make an unusually attractive flower. It usually blooms during October and November and when grown in the manner shown above, has a very pleasing effect.

I have been years working on pansies to prove that our Canadian-grown seed is more suitable for our climatic conditions than any imported seeds are or ever will be. I wish you could see the difference in quality between our home grown cabbage seed and the imported seed. The plants from our native seed are much the better.—(William Spendlow, Billings Bridge, Ont.

Plant climbers where you wish them to grow. You will find them desirable for covering closets, old buildings, wood piles, fences, posts and even stumps.

FLOWER AND PLANT LORE

EDWARD TYRRELL, TORONTO.

BY the time this issue of The Horticulturist is in the hands of the reader, the "Season of Brown leaves" will be close to us; many of our garden beauties will have put off their summer dress, and be preparing themselves for their winter sleep, but in some favorite places may be seen the hydrangea, rudbeckia and dahlia.

HYDRANGEA, OR CHINESE GILDER ROSE.

This flower was brought from China by Sir Joseph Banks, and presented by him to the Royal Gardens at Kew, 1790. The color is green when young, but turns to a beautiful rose color when in perfection. Soon after its introduction it was observed that some of the plants produced flowers of a fine blue color, and it was some time before this could be accounted for; but Mr. Phillips says he remembers seeing a fine plant of this description, with beautiful blue flowers, in a cottage on a common in Hampshire where no one would have expected to see it. The owner of the plant refused 10 guineas for it, as it was the only one that had been seen, and the circumstances of a poor cottager having refused so large a sum for a plant, excited great curiosity, and brought numbers to see it. The poor woman, although she did not like to part with the plant that had been raised by a child she had lost, sold cuttings to those who would buy them; but when the cuttings blossomed they produced flowers of the original rose color. After investigation it was learned that the poor woman's plant had been reared from the ordinary rose colored variety, but owing to its being planted in the heathy soil of the common mixed with a portion of turf ashes, produced a blue flower, whilst those who obtained cuttings planted them in garden soil, which only gave the original color. Another plant was tried with the same result when planted in a pot of earth taken from Wimbledon Common. This plant was exhibited at the London Horticultural Show.

Rudbeckia, Golden glow.—Native of this continent, named by Linnaeus after Bishop Rudbeck of Sweden, who was mainly instrumental in compiling the Swedish Bible of Gustavus Adolphus, 1618; also in recognition of his efforts in establishing a Botanical Garden and introducing and acclimatizing many northern specimens.

GERMAN ASPARAGUS CULTURE*

U. S. CONSUL H. W. HARRIS, MANNHEIM, GERMANY.

THE raising of asparagus for export, as well as for domestic use, is an industry of considerable importance in parts of Germany. It is confined chiefly to certain localities of North Germany and parts of Baden. In Baden much attention is given to the industry, and the asparagus is said to be superior in quality to that grown in other parts of the Empire.

The soil in which asparagus is raised in Baden is the sandy loam common in the upper Rhine Valley. For asparagus raising the land is first very thoroughly manured and the roots are planted at intervals of 4 to 5 feet in rows about the same distance apart. For the first three or four years no crop is harvested; the land is kept clear of weeds and well cultivated, and is fertilized with stable manure in preference to commercial fertilizers, although these are used to some extent. During these three or four years the ground is kept hilled up around the plants with a hoe, and the shoots are cut back until a considerable bunch of

* Extract from a recent consular report.

strong roots forms at each hill with fibers running in every direction, meeting those from adjoining hills.

A fair crop can generally be harvested the fourth year. As soon as the ground is in condition to work in the spring the process of hilling up the earth around each bunch of plants begins. This is done with hoes, and each row shows a succession of small mounds 10 to 14 inches high, with a base a yard or more in diameter and with the top flattened to a surface of perhaps half this diameter.

In the first warm days in April the new shoots begin to appear, just breaking through the top or sides of these mounds. A long knife is run into the soft, mellow earth of the mounds and these shoots are cut off 5 to 8 inches below the surface. The shoots are entirely white except at the tops, where they show a slight trace of color. They are tender for the most part throughout their lengths and are finely flavoured. These shoots are somewhat larger than those commonly seen in America, being generally one-half to three-eighths of an inch in diameter.

The shoots are generally sold in the local market in pound bunches. For the first few days the crop retails at 15 to 20 cents a pound, but drops to 10 to 12 cents as the season advances. The quantity of cuttings taken from each hill or mound during a season is reckoned at two to three or four pounds.

An asparagus field is supposed to be at its best from eight to 12 years after planting. From that time on the shoots are apt to be less tender, though they may not decrease in size or quantity. Replanting of the field is thought to be advisable after the twelfth year, though many tracts in this locality are said to have remained without replanting from 20 to 25 or even 30 years.

Preserving Tomatoes Whole

"THE very best variety of tomatoes is the Magnus. It possesses practically all the desirable points which may be looked for in that fruit, and produces an abundant crop of early and smooth fruit, with solid meat and few seeds." These views were expressed by W. H. Armstrong, of Cornwall, Ont., to an editorial representative of The Horticulturist, who visited him recently. "I always preserve tomatoes," continued Mr. Armstrong, "in the same way I do cucumbers. Instead of the salt brine I use one quart of good vinegar, such as white wine, to five quarts of water. If the solution is made stronger than this the tomatoes do not keep as long. With the strength one to five they remain fresh and solid for slicing or using in any way until April, and are fairly good as late as June. Great care must be taken in preparing the tomatoes for the barrel. Always break off at the first joint from the fruit, and never put in one with the stem and calyx detached or which is broken. This method has proved very satisfactory with me."

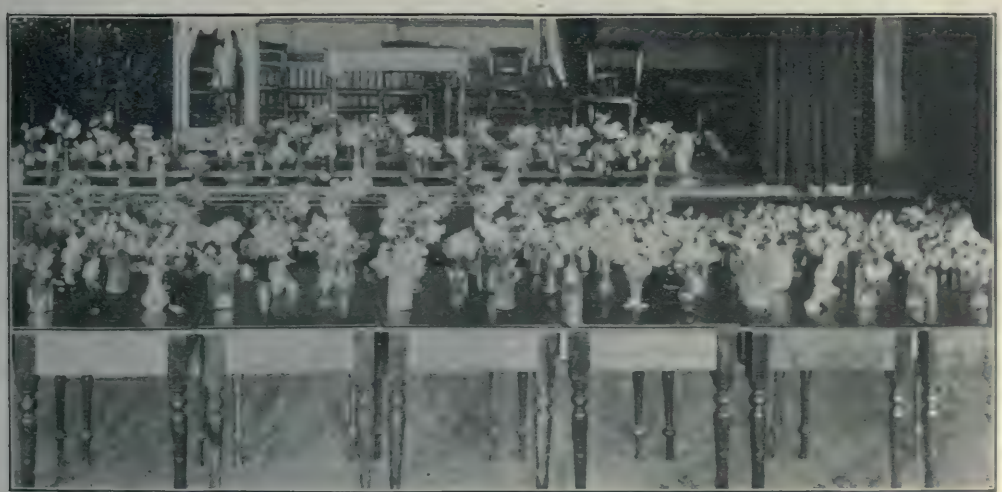
Smith and Reid's article on mulching in the June Horticulturist was to the point, but should we have the mulch as thick as they say from year to year? Would not such a thickness encourage the roots to come to the surface to breathe, as they must have air at their roots as well as their tops? It is possible that they might be encouraged rather too near the surface, and jack frost might nip their toes.—(R. Cameron, Niagara Falls South, Ont.

Our township produces very little fruit, which I think is a pity, for the soil and climate is well adapted for apples, plums, pears, strawberries, raspberries and any hardy fruit.—(R. C. Fowler, Lennox and Addington Co., Ont.

A CERERY GROWER'S METHODS

WM. MORRIS, RODNEY, ONT.

I BEGAN growing celery with some 3,500 plants. Of these plants 3,000 were ordered from Kalamazoo, Mich., with the remainder from a local home grower. The latter were set out first, and although they were extra well rooted, the Kalamazoo plants are fast catching up to them. The first plants were set out six inches apart, but spread over the ground. The United States plants were only put about two inches apart. These latter plants grew much straighter than the local plants. A good plan, after the plants are in place, is to tramp the ground down hard on each side of the plant and leave them for three weeks or more, until they get well rooted. For cultivation purposes I use a Planet Jr. five fly plow and a garden rake. Keep a fine silt on top to draw the moisture. Draw the fine dry earth up to the plant, but do not cover the heart, or the centre will grow down instead of up. I did not trench the celery after the plants got nicely started. I experimented on a portion on top of the ground next to the plant, putting some lime on part of a row, some wood ashes on part, and left some ground with nothing on. I cannot see much difference in the results as yet. The plants are kept well soaked with Bordeaux mixture for rust. Twelve inch boards were placed against the celery on top of what dirt I have pulled up to blanch the plants. I use no water only to dibble in plants. The colder the ground, the better. The plants do not want too much hot sun ; the shadier they are the better. The soil best adapted for celery growing, I find to be a sandy loam. Any ground that will raise good potatoes will grow good celery. Manure the ground in fall, plow in, and put on a top dressing of wood ashes. Let this leach down during the winter and spring and then plow in. This I intend doing in the fall, after taking up my crop."



An Exhibit of Sweet Peas Made By Ottawa School Children.

Great interest has been taken in Ottawa during the past couple of years in a school children's Sweet Pea competition which has been conducted as the result of the generosity and through the active efforts of Mr. R. B. Whyte. Several hundred children started in the competition this year, there being considerably over 100 entries in the exhibition which was held a few weeks ago. Great good is being accomplished by this line of work which will be continued next year.

The Canadian Horticulturist

The Leading Horticultural Magazine in the Dominion.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance, entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share of its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

AN ENCOURAGING VICTORY.

The action of the railway companies in voluntarily making material reductions in their charges for handling fruit is a victory for the fruit growers. The fact that the companies have not waited for the decision of the railway commission but have lowered the rates of their own volition shows a willingness to make concessions on their part and demonstrates the strength of the case presented by the fruit growers.

The principal witnesses for the fruit interests, Messrs. W. H. Bunting, E. D. Smith, M. P., W. H. Dawson and ex-Mayor Graham, are to be cipal witnesses for the fruit interests, are to be congratulated on the success of their efforts. The reductions that have been made in rates will infuse new life into the growers and pave the way towards securing the further improvements still required. The benefits of organized effort on the part of the growers and of having a railway commission are now apparent.

ENFORCING THE SAN JOSE SCALE ACT.

Several cases of great interest to fruit growers were tried during September before Police Magistrate Comfort, of St. Catharines. The cases were brought by San Jose scale Inspector Beatty, who charged several parties with neglecting to destroy or properly treat fruit trees on their premises infected with the scale.

After hearing considerable evidence the magistrate decided not to punish the defendants in view of the fact that these were among the first cases which had come before him, and he was pretty well convinced that the delinquents had acted as they did through ignorance. The announcement was made, however, and it was a welcome and important one, that as the scale is widespread and there seems no way of stopping its progress a more severe view will be taken of such cases in future and fines will be imposed where there are convictions. The minimum fine is twenty dollars.

Infested orchards that are not cut down or properly sprayed are an injury to the whole neighborhood. The imposition of a few fines may convince some growers of the benefits of spraying who have not yet learned this lesson through injury to their trees.

A CHANCE FOR THE SOCIETIES.

The various horticultural societies of the province should not fail to appoint as many delegates as possible to attend the horticultural meetings which will be held at the time of the Provincial Fruit, Flower and Honey Show in November. Two matters of great importance to all horticultural societies will have to be considered. One is the advisability of forming a provincial horticultural association, and the other the need for a change in the act granting aid to horticultural societies.

There is no doubt that there is room for a good, live horticultural association. The fruit growers, bee keepers, dairymen and poultry fanciers all have provincial associations; why should not members of horticultural societies be equally well organized? Were such an association to do nothing more than succeed in evolving some method by which copies of the best papers presented at society meetings can be circulated to the advantage of other societies it will have shown good cause for its existence. Greater enthusiasm in horticultural matters is needed. This enthusiasm can be materially promoted by means of a central organization.

In the Agricultural and Arts Act horticultural societies are classed with agricultural societies. Every horticultural society that is established means a reduction in the government grant to the agricultural society or societies of the district. This often works to the disadvantage of both. It seems as if the time has come when horticultural societies are of sufficient importance to warrant their separation in the act from agricultural societies and their being placed on a footing of their own. It will be well for the delegates who attend the convention in November to consider this matter carefully. The appointment of a committee to lay the matter before the Minister of Agriculture may be in order. Members of societies should think this whole question over very carefully and be prepared to act, through their delegates, at the meeting in November. See that your society, if it has not already done so, appoints delegates.

The announcement that Mr. H. H. Groff, of Simcoe, is to give an address at the convention of horticultural delegates at the Provincial Fruit, Flower and Honey Show in November, will be a most welcome one to all who expect to attend. In addition to being the president of the Simcoe Horticultural Society, Mr. Groff is undoubtedly the most noted originator of gladioli on the continent. His remarkable success in this line of work should be a matter of pride to all true Canadians, and his presence at the convention will undoubtedly add greatly to its success. As will be seen by the program, published in this issue, there will be a number of other well known speakers at the convention. The gatherings should prove interesting, instructive and successful.

Fruit growers and florists all through the province unite in extending their heartfelt sympathy to Mr. T. H. Race, of Mitchell, in the recent death of his wife. As a director of the Fruit Growers' Association and a speaker at horticultural society meetings Mr. Race has become widely known throughout Ontario. The interesting letters from Mr. Race, while at the St. Louis Exposition, which have appeared recently in The Horticulturist, have been greatly enjoyed by many, who will hear with deep regret of his heavy bereavement.

Several hundred notices have been sent out during the past two weeks to readers of The Horticulturist, and more will be mailed shortly, informing them that their subscriptions have expired. Owing to several changes made in the business management of the magazine since the first of the year mistakes may have crept into the mailing lists. We trust such subscribers as may be wrongly billed will be lenient in regard to the error and drop a few lines to the office to set things right. The subscription lists are now being placed on a basis that will practically prevent such mistakes in the future.

It has been pretty generally understood for some time that the lime-sulphur wash is an effective remedy for the San Jose scale. The definite announcement by Prof. R. Harcourt, in this issue, that the lime-sulphur wash, when properly applied, will control the scale, is nevertheless most important, as it is authoritive and should remove any remaining doubts on that score. The results of the experimental work yet to be completed will be watched with keen interest by fruit growers.

It is practically impossible to publish a successful magazine without advertisements. To encourage readers of The Horticulturist to patronize our advertisers a handsome calendar for 1905 will be given to all readers who purchase goods to the value of one dollar or more from advertisers. This includes growers who make consignments to buyers advertising in The Horticulturist. The only condition attached to this offer is that readers must inform advertisers that they saw their advertisement in The Horticulturist.

The very best peaches and grapes the business staff of The Canadian Horticulturist has tested this year were received from Mr. Robert Thompson, of St. Catharines. They were Mountain Rose and St. John peaches and Champion grapes, and were most luscious as well as the only ones (of all those we presume have been sent), which have yet reached the office.

Great damage was caused in many orchards last winter by mice owing to neglect in the fall, to properly protect the trees. The serious loss sustained by many growers should be a warning to others to see this work is properly attended to this season. Some good articles on the subject appear in this issue.

The annual reports for 1903 of the Ontario Fruit Growers' Association and of the Fruit Experiment Stations are being distributed. Fruit growers who do not receive copies in the near future should write to the Ontario Department of Agriculture as the reports are valuable and should not be missed.

Rules for the Fruit Exhibit.

The following arrangements have been made for exhibits of fruit at the Provincial Fruit, Flower and Honey Show in November:

Special prizes of $25 and $15 will be awarded to the agricultural or horticultural society or fruit growers' association exhibiting the best general collection of fruit, the same to be placed on the tables by a member or members of the exhibiting association. When desired exhibits will be placed by an official of the show. Entry fees in all classes are as follows: Single entries up to four, 25 cents each; five entries, $1; all additional entries, 10 cents each. Entries close November 5.

Transportation charges to Toronto on all exhibits will be paid by the Ontario Fruit Growers' Association. It is provided, however, that all prize winning packages shall become the property of the association. All packages forwarded prior to the time of the exhibition shall be addressed to Toronto Cold Storage Co., care of P. W. Hodgetts. Such packages will be held in cold storage free of charge till required.

Bulb Culture Described.—The Ottawa Horticultural Society during September issued an extremely handsomely gotten up and valuable bulletin entitled "Bulb Culture for the Amateur." The bulletin, which was compiled jointly by Mr. W. T. Macoun, horticulturist of the Central Experimental Farm, and Mr. R. B. Whyte, of Ottawa, was distributed to all the members of the society. It gives complete yet simple directions in regard to the fall planting of bulbs both for garden and indoor cultivation, with lists and descriptions of the best varieties. Societies may secure copies at low cost by writing the secretary, Mr. J. F. Watson, Ottawa. The Ottawa society deserves credit for its enterprise.

RAILWAYS HAVE LOWERED THEIR RATES

Some material reductions have recently been voluntarily made by the railway companies in their transportation rates on fruit. The new rates will be of decided value to fruit growers, although it is generally felt other important changes are needed. The changes have been made as a direct result of the evidence given recently before the Railway Commission by representatives of the fruit interests.

The following statement has been given The Horticulturist by Mr. W. H. Bunting, president of the Ontario Fruit Growers' Association. "After some correspondence with the railway commissioners and with the railway companies, the latter have voluntarily ceded a material reduction in the rate on mixed car loads of fruit from the principal shipping districts to the larger centres of distribution, such as Toronto, Ottawa, Montreal, Quebec and Winnipeg. They have also made a special rate on half car lots, or 10,000 pounds or over. These concessions are equal to about $10 per car to Ottawa and Montreal on full car lots, and about $36 per car lot to the northwest. In addition the flat rate for icing cars destined for Manitoba has been abolished, and hereafter shippers will be charged for only the actual amount of ice supplied. Apples, whether in boxes or barrels, will be carried at the same rate, and it is expected that pears in boxes or barrels will be in the same class as apples in future. These concessions, while by no means all that the committee representing the fruit industry asked for and considered reasonable, are, however, a measure of relief to a very serious situation, and will no doubt be received as an earnest of the desire of the railroad companies to meet the wishes of the fruit men as far as seems to them practicable.

With the view of ascertaining what other leading fruit men think of the new rates The Horticulturist has secured the opinions on the subject of Messrs. E. D. Smith, M. P., and H. W. Dawson, both of whom gave strong evidence before the Railway Commission.

REDUCTION TOO LIMITED.

Writing to The Horticulturist, Mr. E. D. Smith, M. P., of Winona, gives his views as follows :

"I don't think anything of what has been accomplished. The reduction on fruit rates to four principal cities only is more in the interests of the commission houses in those four places than the fruit growers and shippers who are shipping very largely to all the towns and cities in Ontario, Quebec and the Northwest. The reduction is too limited to be of general benefit to the majority of fruit shippers."

BETTER SERVICE WANTED.

The Dawson Commission Co., of Toronto, has written The Horticulturist as follows :

"The railways have done no more than they should do in regard to the reduction on rates and shipping charges, but we are satisfied that after a little time the Railway Commission will be able to adjust rates and charges so as to be advantageous. What we should impress upon the railway compenies and the Railway Commission is the need for better service than they are giving us. While there is some little improvement this year, it is a long way from being what it ought to be.

RESULTS OF THE TRIAL SHIPMENTS TO IRELAND

The following letters have been received by Mr. W. T. Macoun, horticulturist of the Central Experimental Farm, Ottawa, in regard to the two trial shipments of apples he recently made to Belfast, Ireland.

THE FIRST SHIPMENT.

I have received the 100 boxes of Duchess apples this week, and the quality of the apples is rather disappointing, as it is not good enough for eating, and for cooking buyers prefer our own Irish apples, which are an exceptionally good crop this year and very cheap. Had they been a nice good keeping eating apple and a good color I could have sold them, I think, very well. They are certainly very well put up, and the packing is very good; in fact, one of the largest buyers told me he would take the whole of the apples if they had been suitable, but he would not take a box when he saw them. He said he was quite prepared to pay me 4d. for as many of the empty boxes as I could get him, but the apples to him were useless, as they would not suit his customers at all. What he wants is a nice dessert apple; we have plenty of the cooking grades here. There was only one buyer that would make me an offer at all, and the best he would make me was 2s. per box, ex quay. (Signed) HUGH GORDON.

THE SECOND SHIPMENT.

The second consignment of apples have arrived, and as requested I have examined the boxes and notice the way you have them packed. They are certainly very well put up, but some of the largest fruit merchants here state that they are the wrong kind of apples you are shipping, as they will keep no time, and would have to be disposed of immediately they arrive, and as there is considerable risk to the buyer he will not be willing to give a very big price for them. The Pointed Pipka apples are very well put up indeed, and they have arrived here in splendid condition, but I will not be able to get a very big price for them as the Irish apples are so plentiful and are being sold at very low prices. One of the largest fruit merchants in Belfast informed me that if you could get him any barrels of Alexander apples he would have a ready sale for them, in fact, he said that the demand was entirely on barreled apples, as the boxes were difficult to place, as there is so very little bulk, and of course the prices must be higher in consequence of the expense of packing.

(Signed) HUGH GORDON.

P. S.—Have only been able to get 3s. 6d. for Pipkas and 2s. for Duchess, ex quay, Belfast.

PRICES BEING PAID FOR APPLES

Careful inquiries have been made by The Horticulturist during the past few weeks to ascertain the size and condition of this year's apple crop and the prices growers, more particularly those in Ontario, should realize for their apples. The total crop this year is somewhat smaller than last season, both in this country and in the United States. In Great Britain there is a fairly large crop, which will not materially affect the demand for high-class Canadian fruit. There is no reason apparent why prices of apples this year should not reach the average figure of 75 cents to $1 per barrel on the trees.

In the United States orchardists generally are more sanguine regarding market prospects than dealers. Buyers are reporting large crops, but as growers do not seem inclined to accept these estimates, comparatively few purchases have been made to date for delivery of winter apples. In New England buyers and sellers are wide apart. Dealers have been offering an average of $1 per barrel, while farmers are holding for $1.50 to $2. Throughout New York buyers are talking $1 and $1.50, while growers refuse to listen to anything less than $1.50 to $2. The same condition generally exists throughout Pennsylvania and Ohio.

In Ontario there appears to be almost a combination between brokers and buyers to depress the price in the interest of the dealers. As the quality of the crop is fairly good, in spite of much poor fruit in some sections, there is no strong reason why the average price should not reach 75 cents to $1 per barrel on the trees for No. 1 and good No. 2 apples.

The fruit division at Ottawa reports to The Horticulturist that as a result of inquiries it finds 75 cents is being offered in the best apple districts for winter stock. In some sections of Ontario where the fruit generally has not been sprayed, and only a small proportion of which grades No. 1, growers are finding it difficult to make sales as buyers refuse to take their crops at any price.

Special reports received by The Horticulturist from various sections of the province are here given :

In Ontario county Elmer Lick reports all kinds of prices are being paid, ranging from 50 cents to $1 per barrel picked off the trees. Sales have been made at these prices. The average by the barrel will probably be between 50 and 75 cents for the fruit on the trees. The quality of the fruit was never better. In this same county Mr. George Toole, of Brock Road, reports 50 cents has been paid for fall apples and Greenings on the tree, while winter varieties are bringing 75 cents on the tree, the grower to board the pickers and pay the teaming to the railway stations. Some few sales have been made at this figure.

In the northern part of Huron county, according to Mr. A. E. Sherrington, of Walkerville, there have been but few buyers up to date. For fall apples 60 cents per barrel has been offered, with no quotations as yet for winter apples.

Buyers in the vicinity of Warnoch are offering 75 cents per barrel for fall and winter apples. In this district Mr. George Fothergill reports he does not believe that there will be more than one-half as many winter apples as last year. Offers of 50 cents to 75 cents per barrel for winter apples are being made in Perth county. One grower, Mr. Joseph Chantler, states that winter apples are scarce, he having been offered as high as $1.50 per barrel for good Spys by a neighbor. Few buyers have put in an appearance in this vicinity.

Near Barrie, in Simcoe county, one buyer generally takes most of the crops at about $1 per barrel. A second buyer in this district, who purchases crops in sugar barrels with open heads, recently offered Mr. George Ottaway $1 per barrel for large sugar barrels, and sales are being made at that price. The crop of winter apples will be less than 70 per cent. of last year's crop, and growers seem to think that they should realize better prices than are being offered. A report from Mr. Herbert Stratton, of Durham county, shows buyers are offering 75 cents per barrel.

EUROPEAN APPLE CROP AND PRICES

The following special reports have been received by The Horticulturist from leading British apple importers and commission dealers:

The autumn and winter crop is a heavy one in most of the English apple growing districts, the crop of Blenheim Orange Pippin being the heaviest for many years. Not being gathered in, we cannot say how the winds may affect them. At present they are growing fast and are showing fine quality.—(George R. Smith & Co., Manchester, England.

There is an extra heavy crop of English and continental fruit. English growers are offering finest large samples of fruit, selected at $5 to $6 per ton, and are quite prepared to contract forward of this price for the next three months. We therefore do not expect that your early Greenings, and such like varieties, will command high prices.—(Clark & Sinclair, Dundee, Scotland.

The apple crop in this country, as well as on the continent, is an exceptionally good one, both as to quantity and quality, and, while it must to some extent prejudice early importations from your side of the Atlantic, it can hardly influence much the later arrivals or winter varieties reaching us by the end of October. Indications from some Canadian shippers point to anticipations of prices equal to those of last season, and although it is quite possible that for best varieties we may realize as high prices as were obtained last season, it will be better, nevertheless, to reckon upon general averages of from 10s. to 14s. per barrel, and for choice varieties 12s. to 16s. or 18s. for arrivals to end of December. It must be borne in mind, however, that these prices can only be taken as applying to best fruit packed by men well up to the requirements of tight packing, grading and selecting. Common or badly packed sorts will

You will receive The Horticulturist 15 months for a Dollar by subscribing now. It is worth it.

lose money, since fruit of that class will not be wanted. It cannot be too strongly impressed upon intending shippers that fruit packed by bad or inexperienced packers is at all times unsatisfactory, but more especially so in seasons when apples are not actually in short supply, as will be the case this season.—(J. B. Thomas, Covent Garden Market, London, Eng.

Prices will rule much lower than they have done for the last two or three years, but Canadian apples have obtained a firm footing in all our English markets. Previously to 1895 very few Canadian or American apples were sold in London, but dealers are now alive to the fact that Canadians honestly meet their requirements better than English.—(Garcia, Jacobs & Co., London, Eng.

ONTARIO'S APPLE CROP

A pretty good idea of this year's apple crop, both fall and winter, may be gained by the following reports received by The Horticulturist from growers in the counties mentioned. It will be seen that the statements made by buyers, that the apple crop this year is a very large one, are hardly borne out :

YORK COUNTY.

Fall apples are about equal to last year's crop except in size, not being as large. Late varieties will improve. Winter apples are of good quality, but only about half a crop.—(Joe Armstrong.

Apples have not colored up yet, being about two weeks' late. Snows and Colverts are on the small side.—(A. H. Crosby.

There will be a full crop of early apples. Alexanders will be light, Fameuse and St. Lawrence a medium crop, with Colverts a full yield. Winter apples are a good crop, excepting Spy, Ben Davis and Pewaukee.—(J. D. Evans.

ONTARIO COUNTY.

Apples are generally of a fair quality, there not being much fungus. The crop is 60 to 75 per cent. of last year.—(George Toole.

The amount of apples for export will be about 90 per cent. of last year. Fruit, although smaller in size, is very clean and will average up well. Baldwins and Fameuse are particularly heavy.—(R. L. Huggard.

The early apple crop was heavy., Late apples are not so heavy as last year, although the quality perhaps is better.—(P. Christie.

Apples only about three-quarters of last year, except fall and early varieties, but of excellent quality.—(Thomas Conant.

Our section will yield about one-half last year's crop.—(E. Lick.

VICTORIA COUNTY.

Fall apples are plentiful, but winter apples are a light crop.—(Geo. Smith.

Summer and autumn varieties generally are of rather better quality than usual and a full crop. Many of the staple winter apples, such as Spy, Ontario, Russet, etc., are almost a total failure. Other varieties promise well.—(Thos. Beall.

Apples about 40 per cent. of a crop. Quality equal or better on the whole than last year.—(William Robson.

DURHAM COUNTY.

Apple crop is about 80 per cent. of last year's; quality better.—(Henry Edson.

Fall apple crop a full one. Winter apples only half of last year's crop.—(Herbert Stratton.

Early apples a full crop. Apples on the whole not likely to be more than quarter of last year's crop. Quality fair, size smaller than usual.—(E. Mitchell.

NORTHUMBERLAND COUNTY.

About half the crop of last year. Apples generally clean.—(J. Weatherson.

Crop about 75 per cent. of last year. Quality as good or better.—(H. J. Scripture.

Crop not two-thirds of last year. Quality not of the best.—(Hugh Ross.

HASTINGS COUNTY.

Apples will be rather poor in quality and not a large crop.—(P. D. Aitkens.

Very light crop of winter apples all along the front of the Bay of Quinte, there not being over a third of a crop. Farther inland crop is about up to the average.—(F. S. Walbridge.

The average of all varieties of winter apples will be about 50 per cent. of a full crop. Quality good. Fairly good crop of most varieties of fall apples.—(W. C. Reid.

SIMCOE COUNTY.

Winter apples light in all orchards.—(J. Chantler.

Apples a light crop, hardly 50 per cent. of last year.—(Geo. Ottaway.

Early apples an average crop; later varieties not as large a crop as last year.—(S. Robinson.

GREY COUNTY.

We will have a full crop, but over half will be fall apples. Wind storms are reducing the quantity of winter apples.—(J. W. Graham.

BRUCE COUNTY.

Apples about three-quarters of a crop, but better in quality than last year.—(Alex. Shaw.

WENTWORTH COUNTY.

Apples about 85 per cent. of a full crop, and of better quality than last year.—(J. Fred. Smith.

Apple crop about one-half of last year, the fruit being small but of good quality.—(L. Back.

LINCOLN COUNTY.

Apples not 50 per cent. of last year, but quality better.—(W. D. Culp.

Winter apples a good crop, free from scab and few worms.—(E. G. Stewart.

We have the largest crop of apples, fall and winter, we have grown for a number of years, of good size and almost perfectly clean.—(S. E. Secord.

LAMBTON COUNTY.

Winter apples will be about two-thirds less than last year, but quality much better.—(E. S. Richter.

Apples not such a large crop as last year, but quality better.—(F. Chalk.

CANADA'S GREATEST FRUIT AND FLOWER SHOW

The Provincial Fruit, Flower and Honey Show, which will be held in the Church street rinks, Toronto, November 15-19, will undoubtedly be by far the largest of the kind that has ever been held in Canada. This was indicated by reports presented at a meeting of the general committee in charge of the show held September 22. Flower growers reported that there are thousands of chrysanthemums as well as other flowers being grown, in the vicinity of Toronto alone, for exhibition at the show, in addition to which entries have already been made from outside points, including such centers as Chicago. As the date of the show will be most favorable for the fruit men (all previous exhibitions having been held at too early a date in the season), the fruit exhibits will be the largest that have ever been made in Canada.

Those present at the meeting included the president, Mr. R. J. Score, Messrs. J. McP. Ross, W. G. Rook and Edward Tyrrell, of the Toronto Horticultural Society; A. McNeill, of Ottawa, Chief of the Fruit Division; G. A. Putnam, Supt. of Farmers' Institutes, Toronto; P. W. Hodgetts, Toronto, secretary Ontario Fruit Growers' Association; T. Manton, W. H. Foord and E. F. Collins, of the Toronto Gardeners' and Florists' Association; H. R. Franklind and Bernard Saunders, of the Toronto Electoral District Society, and Sec. H. B. Cowan, representing the Department of Agriculture.

A brief statement was given by Mr. Cowan, outlining the arrangements that have been made for the exhibition. It was announced that the prize lists for the fruit, flower and honey sections have been in circulation for several weeks and that from replies already received indications are that the number of exhibits will be very large. The experiment stations throughout the province are arranging to make large exhibits of both natural and preserved fruit. As these stations are scattered throughout Ontario, the exhibits made by them will be very representative of the fruit capabilities of the different portions of the province. The Dominion fruit division at Ottawa purposes making an exhibit of fruit from the different provinces and will also demonstrate the grading and packing of fruit for local and foreign shipments. It is expected these demonstrations will be one of the best features of the show. Under the direction of Mr. G. A. Putnam, superintendent of Farmers' Institutes, several ladies of the farmers' institute staff will give demonstrations in the cooking and preparation of fruit.

Prizes have been offered agricultural and horticultural societies for the best collective exhibits of fruit made at fall exhibitions and brought to the big show. Already a number of societies have signified their intention of forwarding large exhibits. These exhibits will be kept in cold storage in Toronto until the time of the show in November, at no expense to the exhibitors. One of the best features of the show will be the exhibits of spraying machines, cultivators, apple boxes and other appliances utilized by fruit growers. American firms will be allowed to make exhibits under bond.

Representatives of the Bee Keepers' associations have visited the rink and selected their space and purpose making a very large exhibit. Mention was made of the meetings which will be held at the time of the show, including the annual meetings of the Ontario Fruit Growers' Association and the Ontario Bee Keepers' Associations, representatives of horticultural societies, a gathering of farmers' institute workers, etc. A mass meeting will be held Tuesday evening in the Y. M. C. A. hall.

T. Manton.

Readers of The Horticulturist have frequently heard of Mr. T. Manton, of Eglinton and Toronto, whose reputation as a florist is well-known throughout Canada. His first experience in gardening in Canada was gained as gardener for Hon. R. R. Dobell at Quebec 28 years ago, with whom he was connected for one year, later acting in the same capacity for two years for Hon Geo. Brown at Bow Park, Brantford, and for four years for the Hon. John MacDonald in Toronto. About 1898 Mr. Manton, in partnership with his brother, Geo. D. Manton, started in business for himself in Toronto, his first location being near Reservoir Park. Five years later the business was removed to Eglinton at which point it has since been conducted. With his brother, Mr. Manton looks after some 12,000 feet of glass, as well as a considerable collection of hardy Perennia's, shrubs, climbers etc. At the time of the Chicago World's Fair, Mr. Manton acted as the superintendent of the floral exhibits for two months. Among the offices he has held are the Presidency of the Toronto Gardeners' and Florists' Association, the Canadian Horticultural Association and Toronto Horticultural Society, which societies he has represented for many years at the Industrial Exhibition Association. At present, Mr. Manton is the Vice-President of the Toronto Electoral District Society and a valued member of the general and printing committee of the fruit, flower and honey show to be held in Toronto in November.

It was decided at the meeting that members of horticultural societies, the Fruit Growers' Association, etc., will be sold members' tickets at 50 cents each, which will entitle them to admission at all times during the week.

Wednesday will be made "apple day," when all attending the show will be given an apple free. Friday will be "carnation day," when all at the show will be given a carnation free.

Located at Manchester.—In the September Horticulturist a statement from Craze & Goodwin was published concerning fruit prospects in the British Isles. The firm's office was given as London; it should have been Manchester.

Nova Scotia Apple Crop.—Allow me to correct an error that has gone abroad concerning the quality of the apple crop in Nova Scotia. We are credited this year with a great deal of scab. While in some parts of King's county considerable fungus is present, it is chiefly confined to the early varieties, such as Gravensteins, but the whole western end of the Annapolis valley is producing fruit of exceptionally fine quality.—(R. J. Messenger, Bridgetown, N. S.

WHAT THE HORTICULTURISTS WILL DISCUSS

The following extremely interesting program has been prepared for the meetings of the delegates of the horticultural societies that will be held at the time of the Provincial Fruit, Flower and Honey Show, in Toronto, in November. Owing to there not being suitable accommodation in the Granite rinks, Church street, where the show will be held, the meetings will take place in the members' committee rooms at the Parliament buildings, which are within a few minutes' walk from the rink :

Tuesday afternoon, November 15, 2.30.—Chairman, Edward Tyrrell, president Toronto Horticultural Society.

The planting of the home and school grounds, Prof. H. L. Hutt, O. A. C., Guelph, Ont.

How can we best interest our young people in floral and horticultural matters ? Mr. A. K. Goodwin, Cayuga, Ont.

Horticultural societies ; what they are doing. Addresses on this subject will be given by representatives of the different horticultural societies present at the meeting.

Wednesday, November 16, 10.30 a. m.

The Agricultural and Arts Act; how it affects horticultural societies. Supt. H. B. Cowan, Toronto.

Discussion—Shall we form a Provincial Horticultural Association ? General business.

Best annuals and perennials for cut flowers. R. Cameron, Niagara Falls South, Ont.

Wednesday afternoon, November 16, 2.30 p.m. Chairman, Hon. John Dryden.

Hardy vines for the house and garden. W. T. Macoun, Horticulturist C. E. F., Ottawa.

Plant improvement by Hybridization. H. H. Groff, Simcoe, Ont.

The care of window plants. Wm. Hunt, O. A. C., Guelph, Ont.

The relation of birds to horticulture. C. W. Nash, Toronto, Ont.

Wednesday evening, November 16, 8 p. m.

What may be grown in a small garden during one season. R. B. Whyte, Ottawa, Ont.

Border flowers. J. C. McCulloch, Hamilton, Ont. ; illustrated by stereoptican views.

Kingston's Fine Exhibition

For the first time in several years the Kingston Horticultural Society, in September, held a show separate from that of the agricultural society. The weather was very unfavorable both days, but the exhibit outclassed anything of the kind ever held in Kingston.

Leman A. Guild.

The Secretary-Treasurer of the Kingston Horticultural Society, Mr. Leman A. Guild, is a graduate of the Brockville Collegiate Instituite, Athens Model School and the Brockvil e Business College. After teaching school for a time he went to work on the daily British Whig. His experience as reporter, city editor, and advertising solicitor, preceded his appointment last April as business and advertising manager. He is 26 years of age Last March Mr. Gui d became Sec.-Treas. of the Kingston Horticultural Society and has brought the membership up considerably over 160 within five months. He finds plenty of hard work attached to the office of secretary-treasurer during a show, especially one like the one described in this issue, where the entries in three departments, flowers, fruit and vegetables, were all equally large. The unbounded success of the late show was ample compensation to Mr. Guild for the hard work put forth.

The society offered prizes amounting to $427.50, distributed as follows: Plants and flowers, $107.50; fruit, $140; vegetables, $120 ; amateur flowers, $50. Special prizes of $5 each were given by citizens for the best collection of apples, fruit and grapes, respectively. The president of the society, Lieut.-Col. Kent, donated a special prize of $3 for best collection of potted plants, and another of $2 for best collection of cut flowers.

There is every prospect for a splendid show next year. This year's exhibition may be regarded as very much of an experimental one. Great interest and enthusiasm has been aroused, and the amateurs especially are planning for larger and better things next season.

Did St. Catharines Beat Ottawa?

One of the most attractive organizations in St. Catharines is the horticultural society of that place. This was strongly evidenced by the late flower show and exhibition given by that society, with results that far surpassed the ideals of any of those interested in its success. A high compliment was given by Mr. W. T. Macoun, of Ottawa, who said the show was the finest he had ever attended.

The school children's exhibits were a most important feature of the show. Aster seeds had been previously distributed to the children of ten different schools. There were awarded to the best four collections of 24 blooms each, three colors in a collection, shown by the individual schools, prizes of 15, 12, 9 and 6 canna bulbs for planting in the grounds of the successful schools. Prizes were also awarded for the best individual bunch of four blooms by any scholar from the seed distributed in school by the society. The exhibits from the children were all very fine. The principals of the schools were given the task of arranging and placing the exhibits on the tables, which was most pleasingly done.

The great beauty and effectiveness of the displays were added to by Mr. Roderick Cameron, who brought some beautiful blooms for center pieces, which were purely decorative, not entering for competition. One of the objects of much interest was a black hollyhock displayed by Miss Douglas.—(S. Richardson, Jr., Secretary.

One Dollar will pay for a New Subscription for The Horticulturist until January, 1905. Why not subscribe?

Good Exhibit at Preston

The occasion of the 17th annual exhibit of the Preston Horticultural Society, in early September, was a great success. The display of plants, cut flowers, fruit and vegetables was a very fine one. At the end of the building was stationed the Preston band, which rendered choice musical selections both evenings.

One or two exhibits might, perhaps, be picked out for special notice, including a collection of about 75 coleus plants grown by the school children of Preston. Very creditable plants were in this exhibit. Another excellent exhibit included 100 different varieties of outdoor cut flowers, shown by T. Hobden, gardener to G. Pattison, Esq., president of the society. This was really a superb collection, the outdoor grown roses in the collection being very fine for the late season of the year. The awards were made by Mr. W. Hunt, of the O. A. College, on the plants and flowers, and by Mr. Lane, of Galt, on the fruit and vegetable display.

A successful exhibition and flower show was held by the Elora Horticultural Society early in September, being an annual affair. In August it was voted to hire rigs to convey plants and flowers to and from the building in safety free of charge to the exhibitors. This was a most welcome innovation to those sending specimens to the show. The society has been doing very good work all season, and interest in the work is increasing.—(J. W. Love, Sec'y Elora Hort'l Society.

London Florists Outdid Themselves

The flower show held by the London Horticultural Society the last of August (too late to be reported in the September Horticulturist), was the most successful ever held by that society. Over 50 exhibitors showed 1,000 jars and bottles of cut flowers, exclusive of the specimens shown by J. Gammage & Sons and Messrs. Darch and Hunter. The president of the society, Mr. C. J. Fox, had a fine exhibit, consisting of over 200 blooms, with some 29 varieties. The display perhaps attracting the most notice was that of W. H. Groff, of Simcoe, and his wonderful gladiolii, with Mr. John A. Campbell a close second. Some change was made this year in the arrangement of the flowers, they being placed according to their varieties, thus sweet peas, verbenas, dahlias, stocks, etc., were all in a class by themselves. This arrangement seemed to be more pleasing in every way and resulted in the exhibits being more tastefully and pleasantly arranged.

Exhibits Were a Surprise

Hespeler horticultural society held a very successful flower show September 15. Last May 200 geraniums and coleus were distributed among the school children, and these plants were among the recent exhibits. Some very fine plants were shown, and great surprise was expressed by visitors around the children's table. Magnificent specimens of house plants

Allan Line, Royal Mail Steamers

MONTREAL TO LIVERPOOL

FAST TWIN SCREW STEAMERS—10.000 TONS.

TUNISIAN, 23rd Sept.	TUNISIAN, 21st Oct.
IONIAN, - 30th Sept.	IONIAN, - 28th Oct.
BAVARIAN, 7th Oct.	BAVARIAN, 4th Nov.
PARISIAN, 14th Oct.	VICTORIAN, new, 11th Nov.

Average time of passage from port to port, eight days.

Each steamer is fitted with refrigerators for cargo requiring cold storage, and in addition a thorough system of ventilation in compartments where fruit is stowed.

MONTREAL to GLASGOW Every Thursday
and
MONTREAL to LONDON, Direct every alternate Thursday.

The greatest care taken in handling apples.

Rates and further particulars on application to

J. D. HUNTER, WESTERN FREIGHT AGENT,
77 Yonge Street, Toronto, Ont.
or H. A. ALLAN, Montreal.

were on exhibition. The hall proved far too small, as a number of people were not able to obtain admittance. A larger hall will be secured next year, and if possible the prize list materially increased.—(E. Gurney, sec'y.

Splendid Floral Exhibitions

The Grand Trunk Employes Horticultural Society, organized in 1902 in Stratford, gave its annual floral exhibition during September, when the united efforts of all members resulted in a fine display of plants, flowers, fruits and vegetables. Some choice ferns and palms were shown, as well as gladioli, pinks, pansies, phlox, etc. A large assortment of begonias was also noticeable. Many prizes were awarded by judges Messrs. Robert McLagan and W. Sanderson, secretary of the society.

A similar society, located at Port Huron, held a similar show at that place the past month, at which the society from Stratford made a fine display, consisting of over 42 varieties of flowers. The erecting department of the railway had three special exhibits, a locomotive, a bell, and a pumpkin. The first was over five feet long, and one of the finest floral pieces ever seen in Port Huron; the bell was made of pansies and smilax. Several exhibits from the other branches of the work were a trip hammer, from the blacksmith shop; from the pipe shop, a perfect miniature of the institute building.

Deseronto Horticulturists Beat Their Record

The eighth annual exhibition and flower show of the Deseronto Horticultural Society was held August 31, and was by far the finest and largest attended show in the history of the society. The number of entries was larger than ever before, and the quality of the exhibits far better. Two large collections of greenhouse plants from the houses of Mrs. E. W. Rathbun and F. B. Gaylord, attracted much attention, as also did the vegetables presented by the same exhibitors.

A new departure this year was a "best kept grounds" competition, in which keen interest was taken. The first prize was awarded to F. B. Gaylord, and second to Mrs. E. W. Rathbun, of the professional classes; in the amateur, with assistance, first prize fell to Mrs. E. W. Rathbun; without assistance, to D. R. Jones.—(D. W. Clew, Pres. Deseronto Hort'l Society.

Believes in Distributions.—Our last meeting was for the purpose of selecting premiums for our annual fall distribution of bulbs, plants, seeds, etc. The order was given to Col. Bog, who imports these direct from Holland. The order consists of about 1,400 narcissus bulbs and over 400 hyacinth bulbs. Distributions of this kind for the fall usually prove very satisfactory. The bulbs are of the best quality, and arrive in good condition. The members take pride in producing the finest flowers for winter blooming.—(Walter T. Ross, Sec'y Picton Hort'l Society.

Dominion Line

MONTREAL TO LIVERPOOL

S. S. Canada (cold storage and cool air)..Oct. 8
S. S. Southwark " " " " .. " 15
S. S. Kensington " " " " .. " 22
S. S. Dominion (cold storage)..... " 29
S. S. Vancouver " " .....Nov. 5

MONTREAL TO AVONMOUTH (Bristol)

S. S. Manxman (cold storoge).....Oct. 12
S. S. Englishman " " ..... " 29
S. S. Turcoman " " .....Nov. 5

LEYLAND LINE

Montreal to London and Antwerp

S. S. Tampican. .....Oct. 4
S. S. Kingstonian (cold storage)..... " 9
S. S. Oxonian " " ..... " 25

The above steamers are specially adapted and fitted up with the most modern improvements for the carriage of apples, butter, cheese, provisions and eggs. Through B./L. granted to and from any point in Canada.

GEO. W. TORRANCE, J. W. WILKINSON, Western Freight Agents 28 Wellington Street East, Toronto.

Dominion Line, 17 St Sacrament Street, Montreal Que.

DONALDSON LINE

TO GLASGOW.

S. S. Lakonia, Cold Storage and Fan Ventilation..... Oct. 6
S. S. Athenia, " " ..... " 13
S. S. Salacia, Fan Ventilation..... " 20
S. S. Marina, Cold Storage and Fan Ventilation ..... " 27
S. S. Parthenia. " " .....Nov. 3

THOMSON LINE TO LONDON.

S. S. Kildona, Cold Storage, Cool Air and Steam Fans....Oct. 1
S. S. Hurona, " " " .... " 8
S. S. Cervona, " " " .... " 15
S. S. Iona, " " " .... " 22
S. S. Fremona, Steam Fan Ventilation..... " 29
S. S. Devona, Cold Storage, Cool Air and Steam Fans.....Nov. 5

THOMSON LINE TO LEITH.

S. S. Bellona.....Oct. 6
S. S. Jacona.....Nov. 15

THOMSON LINE TO ABERDEEN.

S. S. Escalona.....Oct. 24

Traffic may be booked with all Railroad Agents or direct with **The ROBERT REFORD CO., Limited, Montreal,** also with **D. O. WOOD, Western Agent, Room 311, Board of Trade, Toronto, Ont.**

Canadian National Exhibition

In these days of dear labor every labor saving device is of value to fruit growers and gardeners. In this connection some excellent exhibits were made at the Toronto Exhibition in September. A representative of The Canadian Horticulturist was interested in displays made by several of our advertisers.

PARIS PLOW COMPANY.

This progressive company of Paris, Ont., had a grand display of different lines of farm implements, including the famous "Success Manure Spreader." This machine is noted for light draft and simplicity in construction. It is fitted with direct beater chain drive instead of a complication of gears. When thrown into gear the beater is shifted from the load about two inches, thus giving free action to start. Another important feature is the apron returning device, by means of which the apron is returned to place simply by moving a small lever. Gardeners and fruit men should write for free catalogue and particulars about this labor saving machine.

SICHE GAS COMPANY.

All styles of Siche gas machines, from the 200 pound special "K" to the 5 pound stereo generator were on exhibition, and Mr. Sims, the manager, informed The Horticulturist representative that the whole exhibit was sold. "In fact," said Mr. Sims, "Siche seems destined to become the light of the future in Canada." The general opinion of visitors was that Siche Building and C. P. R. were the best lighted buildings on the grounds. Greenhouse men should write this ocmpany and get quotations, as Siche is an excellent light for greenhouses. Cooking stoves, instantaneous hot water heaters, radiators, etc., run with Siche gas, formed the minor lines of this exhibit.

GRIMM MANUFACTURING CO.

This company had a fine exhibit of the famous Champion Fruit and Syrup Evaporators, and Mr. Grimm said that business was brisk and the factory kept busy. Readers of The Horticulturist should get particulars about these fruit evaporators.

WAGGONER LADDER CO.

In this age of conveniences and handy contrivances fruit growers should be specially interested in a light, strong, handy ladder for picking and pruning. The Waggoner Ladder can be telescoped to half its length and again shot up among the branches quite easily. The company makes all kinds and all lengths, and have a handy extension step ladder, which drew much attention during the fair.

ARNDT TREE PROTECTOR.

The Arudt Tree Protector shared the tent of Mr. E. D. Smith, nurseryman, Winona. The agents distributed pamphlets and business cards and had samples on trees in the vicinity of the tent, which were examined by thousands of fruit growers, many of whom had never before seen the band, but who readily saw the practicability of this simple device to stop the ravages of creeping and climbing insects. Many large orders were received.

DO YOU SPRAY, IF NOT, WHY NOT?

THE

LITTLE GIANT SPRAYER

has demonstrated its simplicity, durability and economy.

Save your Material, Time and Labor, by purchasing a Little Giant Sprayer.

This sprayer is mounted on two wheels with a tank of 100 gallons capacity. It can, however, be mounted on four wheels if required. The large sprocket wheel is 30 inches in diameter, and the small one 12 inches. On the other end of the shaft is a 6-inch wheel that runs the pitman attached to the double cylinder pump which is mounted on the tank with places for six lines of hose which can be used all at one time, or any number required. Two lines is enough, put together with stays, for spraying apple, peach, pear, plum, cherry or quince, but for grapes two lines on each side of the machine will spray two sides at once. Any boy can operate it.

For potatoes, six lines of hose brought around to the rear, clamped close to row, will spray six rows at once. For spraying to kill mustard, place two lines on each side of the outfit and two at the rear and spray 20 feet on each side, being 40 feet each way—**ALL YOU HAVE TO DO IS SIT AND DRIVE.** This is the most **powerful** spray pump ever made, and the **cheapest** to operate. It does the most work in the least time.

Write for Catalogue and Price List.

Perkins & Paine Mfg. Co., - - - Port Dover, Ont.

CANADIAN PORTABLE FENCE CO., Ltd.

No other fence at the Canadian National was such a centre of attraction as the one built by the Canadian Portable Fence Co., Limited, of Toronto. Although only a new company, the sales have been large during the past season, and will no doubt increase after the fine exhibit of different lines and designs shown at the exhibition.

LITTLE GIANT SPRAYER.

An exhibit which interested many farmers and fruit growers was a handy and complete spraying outfit manufactured by Perkins & Paine, of Port Dover, Ont. The machine on exhibition had a capacity of two and a half barrels, and all power is derived from the horse. When the horse is stopped two air chambers supply power sufficient to spray a large tree. It is fitted with a double action pump and a practically perfect agitator. From one to six lines of hose may be used, and everything is so handy and so simple that a boy can operate it quite easily.

THE SPRAMOTOR CO.

The Spramotor Co., of London, Ont., had a most complete assortment of spraying appliances, from the small hand power implement to the latest development in power machines. Their large automatic sprayer has a capacity of 24 nozzles, and they claim that 240 trees can be sprayed in one hour.

FLOWERING BULBS

FOR FALL PLANTING. FOR THE HOUSE AND GARDEN.

Crocus—Choice, Mixed, All Colors.....10c. doz., 50c. per 100
Hyacinths " " " .....60c. " $4.00 "
Tulips " " " .....25c. " $1.25 "

Prices Postpaid. Write for our 1904 Bulb Catalogue—FREE.

Special Prices to Horticultural Societies on application.

JOHN A. BRUCE & CO., Seed Merchants
HAMILTON, CANADA.

Ornamental Shrubs
and Hardy Perennials

We have an especially large and select assortment for fall planting, grown in our extensive nurseries. . . . .

SEND FOR OUR CATALOGUE.

The Webster Floral Company, Limited.
WHOLESALE AND RETAIL FLORISTS,
HAMILTON, - - - CANADA.

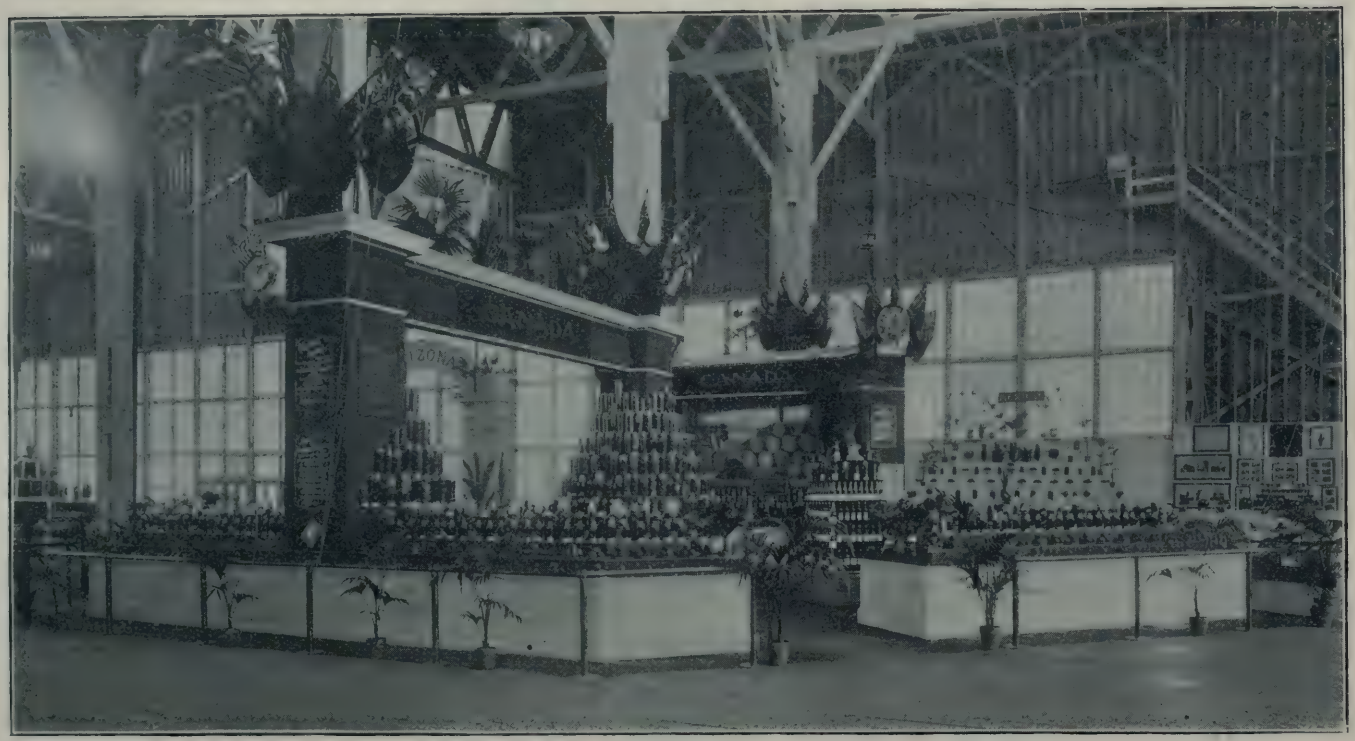
A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

NOVEMBER

THE mild October days are gone,
Sweet nutting time, and kite time,
With frost and storm comes slowly on,
The year's long wintry night time.

But while the mellow light departs,
The household draws together,
And ever warmer grow our hearts,
As colder grows the weather.

J. T. TROWBRIDGE



Canada's Fruit Exhibit at the World's Fair, St. Louis, Mo.

Probably no one feature of Canada's Exhibits at the St. Louis Exposition has attracted more attention or been of greater value than the display of fruit. The magnificent exhibit of preserved, cold storage and natural fruit has proved an eye-opener to hundreds of thousands of United Statesers who had the impression that Canada was too cold a country to produce tender varieties of fruit. An interesting article concerning our fruit exhibits at St. Louis, written by Mr. T. H. Race, (who kindly furnished the photograph for this illustration) appears in this issue. A second article dealing with the same subject, and full of pride over the showing Canada is making, was received from Rev. Father A. E. Burke, of Alberton, P. E. I , just too late for publication.

The Canadian Horticulturist

NOVEMBER, 1904

VOLUME XXVII NUMBER 11

THE BLACK ROT OF GRAPES IN OHIO

PROF. W. LOCHHEAD, ONT. AGRI. COLLEGE, GUELPH.

AT the request of the Minister of Agriculture, I recently visited the grape districts of northern Ohio to ascertain the best methods of dealing with the black rot of grapes. In Ontario, in the Essex district, black rot has been more or less prevalent for some years, but no sustained effort was made to check the progress of the disease. The result was that fruit growers of that district found it necessary to pull out the vines and plant to other uses. Many of the old vineyards which were objects of pride five or six years ago along the Detroit river have now disappeared. In the Niagara region, where the grape industry is developing on a commercial basis, the black rot is beginning to be felt, and grape growers fear they will suffer the same fate as the Essex growers if they do not try to combat the attacks of the fungus.

Through the kindness of Prof. Selby, of the Ohio Agricultural Experiment Station at Wooster, I was directed through the vineyards along Lake Erie from Unionville on the east to Sandusky on the west. Besides, he gave me letters of reference to many of the prominent owners of vineyards in the Cleveland district, with whom I consulted regarding their methods of treatment. The results of the experiments these growers have conducted have been very gratifying. They were conducted on the cooperative plan, that is, the owners and the Experiment Station worked together to control the disease.

Six sprayings are recommended by Prof. Selby for the Delawares, seven for Catawbas, and eight for the Concords. He states that the Catawbas and Niagaras are the most susceptible to rot; the Delawares quite resistant; and the Concords not so susceptible as the Niagaras, but less resistant than the Delawares. He does not believe that early sprayings are of much use, and he bases his belief on the results of sprayings carried on for three years.

WHEN SPRAYINGS SHOULD BE DONE.

The first spraying is given when the new shoots are from one to two feet in length, which in the Ohio district is about June 1; the second spraying is applied about July 1 in an ordinary season. These two sprayings are considered the two most important, inasmuch as they come immediately before and after blossoming. Many of the grape growers told me that if they failed to spray on or about July 4 they almost invariably lost their grapes. The subsequent sprayings are given at intervals of a week or ten days, and the last for the Delawares is usually applied about August 1. The first four applications are made with Bordeaux mixture, and the remainder with either ammonia-carbonate solution or soda-bordeaux.

This question has been studied very thoroughly by Prof. Selby for the last three or four years, and he is of the opinion that grape rot will always be more difficult to control on sandy, open soil than on the heavy clay soil in the Cleveland region. In Ohio the fruit growers use their sandy, open soils for other purposes than grape culture, and there the rot is less severe on the heavy clay soils.

There are so many evidences of the good results of careful spraying, according to the recommendations given by Prof. Selby, that no further experimentation along the line of prevention of grape rot will be undertaken at present. He is satisfied that the methods in use at present will control the black rot every time. I may add that vineyards which were left untreated, or not carefully treated, show either total losses or a very large percentage of rotten grapes. Even the most careless of grape growers in the Cleveland region have come to the conclusion that they must get out of the business, or spray according to the formula given them by the Experiment Station, and which I have outlined. By the way, Prof. Selby does not think much of the dust sprayers, and he is a strong believer in the use of the liquid Bordeaux as a fungicide, which he considers a fungicide par excellence.

There is no doubt that the black rot can be kept in check in Ohio, but it remains for us to prove that it can be held in check in Ontario. It appears that one of the best means of preventing this disease is to burn all the "mummy" grapes which would naturally remain on the vines all winter. These are probably the source of the contagion for the coming season, and too much care cannot be taken to have all such diseased grapes destroyed.

An important point that must be taken into consideration by grape growers is that the black rot is a very difficult disease to control, and that two or three sprayings are not sufficient. It takes six or eight sprayings to keep the disease completely in check and to get perfect grapes. As we know that Bordeaux will discolor the grape when it reaches a certain size, it is well to spray with the soda-Bordeaux or the ammonia-copper-carbonate solution for the last two or three sprayings. It remains for the Ontario growers to show that the black rot can be controlled in their own country under slightly different conditions from those obtaining in Ohio.

ORCHARD FERTILIZERS

W. H. DEMPSEY, TRENTON, ONT.

I FIND it increasingly difficult to obtain good wood ashes with which to fertilize my orchard. Until two years ago I was able to secure 50 to 100 pounds of ashes a week from the lake steamers stopping at Trenton, but since wood has become so dear the steamers have been burning coal, and that source of supply has been cut off. I am now thinking of buying some commercial fertilizer which I have seen advertised in The Horticulturist.

I use all the stable manure I can secure. The ashes are sown broadcast whenever I can obtain any; the manure is carted on during the late winter and early spring and spread thoroughly. Orchards, the same as all other land on which farm crops are raised, require heavy fertilizing to keep them in good condition.

You should receive The Horticulturist promptly on or about the first of every month. Do you? If you don't, let us know.

I enclose $1 for The Horticulturist, which is much improved of late.—(John Mather, Ottawa, Ont.

THE TRIAL SHIPMENTS OF FRUIT TO WINNIPEG

PROF. J. B. REYNOLDS, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THE object of these experimental shipments of fruit to Winnipeg was to find out whether or not tender fruits from Ontario could be placed in good condition on the Winnipeg market by freight carriage. Incidentally it was the intention to inquire into the whole matter of transportation, prices, and selection and packing of fruit, as well as the best construction of car for refrigeration.

In each car were carried apples, Bartlett pears, grapes, plums, peaches and tomatoes. The idea seemed to prevail among most of the fruit growers that in order to carry these fruits to Winnipeg safely they must be picked green and hard. The result does not justify this belief. A considerable proportion of the peaches were packed hard, green and undersized. A fair quantity of them, however, were, when packed, well sized, well colored, and firm, in such a condition as No. 1 Crawford peaches are packed for use within a few days. These last were by far the most desirable when opened up at Winnipeg. In fact, after seven days had elapsed between loading and unloading, after a journey of 1,500 miles, and various shuntings at Allandale, North Bay, Fort William and Winnipeg, Crawford peaches were placed on the market from our shipment in better condition than any I have seen displayed in the shops in Guelph.

This is true not only of a chance few of the peaches shipped, but of all that had not been picked too green. A box of the primest of these peaches found its way into the hands of an acquaintance of mine, and on Monday, three days after the sale and 11 days after picking, I inquired as to the condition of the fruit. The reply was that a few only of the peaches were then mellow enough for immediate use, and that the greater part of the box could be kept until the end of that week, that is, until 15 or 16 days after picking. Grapes shipped well, some of the Moore's Early only being off the stem. The varieties of plums were Reine Claude, Yellow Egg, Columbia, and

An 80 Year Old Apple Packer at Work.

A fruit grower of many years standing, is Mr. R. D. Veale, of Mount Brydges, Middlesex County, who may be seen in this illustration standing with two baskets in his hands. Although over 80 years of age, Mr. Veale still attends to the packing and shipping of not less than 1,000 and 1,500 barrels of apples each year. The apples from Mr. Veale's orchard are shipped to London, England, by the Thompson steamers. The Baldwin apples have given Mr. Veale the best satisfaction with the Golden Russet next. There are 40 barrels of Baldwins grown in this section of Ontario to any other variety.

Grand Duke. These were beginning to soften, but were in good condition when sold. Of Bartlett pears the same may be said as of Crawford peaches, most of them were shipped too green, and those that were allowed to reach good size, and yet were picked firm, arrived in prime market condition.

Various causes contributed to these gratifying results, and the only accidental one was the weather, which was favorably cool. All other contributing causes were anticipated in our plans for the shipment. These were: A selection of good fruit, careful wrapping of peaches and pears, and packing in suitable carriers, boxes for everything, and for grapes and plums a bushel crate containing 12 trays, each tray holding about two and a half pounds; careful loading in the car, so that none of the boxes could move out of its place, and spacing the boxes so that air could circulate on all sides of each box.

As to cold storage facilities: Two cars were selected of quite different interior construction, the one having devices for maintaining air circulation, the other having none of these. It is probable that with warmer weather a defective system of refrigeration would have been detected, but the uniformly cool weather during the shipment made both cars equally effective. Upon this matter, therefore, the experiment is inconclusive. It must be borne in mind that the office of a refrigerator car is to counteract the effect of warm weather upon perishable goods. In a good refrigerator fruit will keep as well in warm weather as in cold. Provided our cars were good, the success of our shipment did not depend upon the weather.

THE PRICES REALIZED.

As to prices: Both cars were sold by auction, one on September 22, the other on September 23. The prices on the first day were: Crawford peaches, $1.10 to $1.25 per box of 12 quarts; plums, $1.50 per crate of 20 quarts; grapes, $1.50 to $1.80 per crate of 30 pounds net; pears, $1 to $1.25 per box, half bushel; apples, 85 cents to $1.25 per bushel; tomatoes, 55 cents to 85 cents per 12 quart box. On the second day there was rather an overload of pears, which went low accordingly. Prices were: Peaches, $1.10 to $1.25; plums, $1.05 per crate of 13 quarts; pears, 70 cents to $1.05 for XXX Bartlett. Flemish Beauty and XX Bartlett sold much lower. Apples, 85 cents to $1.20 per bushel; tomatoes, 55 cents to 60 cents per 12 quart box.

Average net prices, including cost of package, but after deducting freight and commission charges, were: Peaches, 93 cents per box; plums, 75 cents per 13 quarts; grapes, $1.14 per crate of 30 pounds net; pears, 75 cents per box; tomatoes, 44 cents per 12 quart box; apples 55 cents per bushel. In replies received from the growers who supplied the fruit, most of them express satisfaction with these prices. In the instance of plums and peaches prices are ruling high in Ontario this year, and the Winnipeg prices are not relatively high. It is satisfactory to know, however, that the peaches, sold on their appearance simply, without any reputation to help them, realized fully as much as the best California peaches on the same day. The auction method is liable to be panicky, but is on the whole, perhaps, as good a method as any for disposing of perishable fruits.

SHOULD WATCH THESE POINTS.

While our experiment was highly successful, I do not advise shippers to repeat it until they are fully apprised of the importance of attending to details, selecting the fruit at the right degree of maturity, packing and loading properly, keeping the car iced while loading, and filling bunkers before it starts, and marking way bill so as to insure re-icing in transit. With one exception I found that the various icing sta-

tions attended well to the icing. With increase of business, so that the icing of cars becomes a regular instead of an occasional duty, there is reason to expect that it will be better attended to in future. The same is true of despatch. A large volume of freight business in perishable fruits is therefore likely to correct present deficiencies in the transport system. But with the fruit growers and shippers nothing less than co-operation in packing and shipping will remove the defects in that part of the undertaking. There must be uniformity in packages, in grading, in quality of fruit, and these cannot be secured by independent action but only by cooperation.

NOVA SCOTIA FRUIT GROWERS IN A BIG COMBINE

DURING the past month items have appeared in a number of leading papers announcing that the Annapolis Valley Fruit Estates, Limited, has been formed in Halifax to engage in fruit culture on a large scale in the Cornwallis and Annapolis Valleys. In addition to apples, small fruits will be cultivated as well as potatoes and other vegetables. The company will also erect a canning and vinegar plant, and a barrel and box factory for the manufacture of fruit packages.

Desiring to gain as much information as possible about this enterprise for its readers, The Horticulturist wrote to a number of leading Nova Scotia fruit growers asking for particulars, and to Hon. D. Mackeen, of Halifax, who was reported to be financially interested. Some interesting replies have been received. A letter from Hon. Mr. Mackeen reads as follows:

"I am not interested to any particular extent, personally, in the company to which you refer. As far as I understand, however, this company owns some 3,000 acres of more or less highly cultivated land in one of the most fruitful apple growing districts in the Annapolis Valley. I am told that the capital required for fully developing this property into a fruit growing concern has already been raised.

"At present, I understand, the company has over 20,000 apple trees, and it is proposed to put out 30,000 new trees on the property. It is estimated that the present yield from the property will be about 20,000 barrels, and this is only a very small proportion of the company's expected product from the estates."

FRUIT GROWERS NOT SANGUINE.

Two well known Nova Scotia fruit growers heard from do not appear to be very sanguine in regard to the success of the enterprise. The first one heard from, Mr. S. C. Parker, secretary of the Nova Scotia Fruit Growers' Association, wrote as follows:

"I would scarcely call this a cooperative scheme, rather a speculation enterprise handled by a professional promoter. The matter stands thus: A. H. Fair, an insurance agent, has secured options holding for 12 months on a block of country about two miles square, containing some 30 farms (options were secured on all save four or five, who held out). The purchase money is something like $250,000; the other $100,000 of capital is for plant and improvement. I presume the promoter proposes to make a stock company, and bond the concern to raise the required capital. This is one of the best farming sections in the valley, situated two miles from Berwick, directly under the North mountain, running two miles east and west, bounded by roads on three sides. Taking last year's crop as a basis a very glittering prospectus could be made. The promoter says they shipped 16,000 barrels of apples last year, which would net $2 per barrel. The block probably grows 1,000 tons of hay annually, perhaps 20,000 bushels

of root crops, 10,000 bushels grain, probably 400 to 500 head of cattle and 100 horses. The promoter proposes to increase the orchard to an enormous extent, establish warehouses, and factory for handling the waste apples, grow nursery stock, establish a creamery, keep hogs innumerable, with all the equipment necessary to run such a plantation or ranch. The thing is all right in theory and looks well on paper, but an orchard requires 'the master's' hand to make it succeed, and I would expect if the thing is floated to see it sold out in ten years' time to pay the bonds."

A second well known fruit grower writes as follows:

"From what I can learn affairs are not in a condition where I think it would be wise for The Horticulturist to take much notice of this matter. I believe some options have been taken on certain farms, and the promoter is trying to sell stock, but I think it questionable if it really amounts to much. If the project assumes a businesslike appearance and seems likely to succeed, I will write you more fully later. The Nova Scotia Fruit Growers' Association has nothing whatever to do with it."

KING EDWARD'S PORTRAIT ON APPLES

SAMPSON MORGAN, 8 RICHBOROUGH VILLAS, BROADSTAIRS, ENGLAND.

A CONSIGNMENT of apples from France was received recently by Messrs. Garcia, Jacobs & Co., of Covent Garden, whereon was depicted His Majesty King Edward VII. These novelties were sold by Charles M. Simons, Esq., one of the cleverest auctioneers in the market, and a member of the above named firm, who seemed to enjoy the extraordinary sensation created by the apples among the immense crowd of buyers in the spacious foreign fruit market, who were attracted to the sale.

Bidding was so fast and furious that no one could see what was paid for the parcel. When the auction was over the "King's fruit," as it was called, changed hands again and again until some one boasted that he had given 100d. for six of the apples. By the courtesy of Michael Garcia, Esq., the head of the firm, I am enabled to furnish Canadian growers with the method utilized to convey the portrait to the fruit.

The apples were of Peasgood Nonsuch variety. A photographic film was fixed on them just before they colored, and the foliage was fastened away from them to ensure full exposure to the sun. The portrait of His Majesty was chosen for these first fruits because the French peasants consider the entente cordiale greatly due to the tact and large heartedness of King Edward the Peacemaker. Doubtless in future years many will emulate the example of the ingenious French cultivator and produce portrait fruits. As advertisements and for exhibitions they would be very valuable.

Possibilities in this connection seem limitless, and next season we shall witness some interesting developments. Large orders for portrait fruits are sure to be placed this year, and faces as desired, whether of friends or notables, can be pictured upon apples to order. The fruit growers of Canada ought to take up the idea. The portrait of the raiser, with the emblems of the country whence the fruit came, appearing upon the central apple in the top layer of every package, would form an effective trade mark, and be a guarantee of the place of origin to the buyer and consumer.

We let our sheep run in the orchard last fall. It proved a success in keeping the mice away.—(B. Moore, Grey Co., Ont.

Do you like the changes we are making in The Horticulturist? If you do, tell your friends about them.

NURSERIES WHICH ARE A CREDIT TO CANADA

NOT only fruit growers and florists, but Canadians the country over, may well be proud of the nurseries of Morris & Wellington, of Fonthill. Our great financiers and railway magnates are lauded as men of out-standing ability. Equally as great ability, if in another line, must be required to conduct an enterprise of the magnitude of these nurseries.

While the headquarters of the Morris & Wellington nurseries are at Fonthill, some 12 miles from St. Catharines, in the Niagara district, its operations extend from the Atlantic to the Pacific, and invade Europe as well. The business conducted by this firm amounts to the hundreds of thousands, while its agents are to be found in all the leading towns and cities of the Dominion. Every year large orders are sent to Europe, more particularly for ornamental shrubs and plants. So extensive are the operations, it has been found necessary to establish a special office in Toronto, through which the greater portion of the business is conducted under the name of Stone & Wellington.

A few facts about these nurseries may assist in giving some idea of the scope of its operations. Entire charge of the management of the nurseries is vested in Mr. E. Morris, the senior partner, the business end being conducted by Mr. Wellington. At the time of a visit paid the nurseries during the summer by an editorial representative of The Horticulturist, Mr. Morris was found to be a very busy man. This will hardly be wondered at when it is stated Mr. Morris is responsible for the successful growing of the thousands of different varieties of nursery stock, ornamental shrubs and trees and flowers handled by the firm, on its nine farms. These farms are all located within a few miles of Fonthill and contain over 800 acres, of which 600 acres are owned by Messrs. Morris and Wellington, and the remainder rented for a term of years.

The annual plantings are enormous. They include some 400,000 young apple trees, 50,000 to 100,000 plum seedlings, 75,000 rose plants, 15,000 elm trees, and other varieties in proportion. At the time the representative of The Horticulturist visited the nurseries some 1,500,000 young apple trees, one to four years old, were being grown on the various farms, to say nothing of peach, pear, plum, cherry and other seedlings. When it is realized that, in addition to this nursery stock, thousands of trees and shrubs and flowers, of hundreds of varieties, are grown, some idea of the extent of the business may be gained. Long ago Mr. Morris realized that it would be impossible for him to personally look after the details of the growing of all this stock. Capable foremen were, therefore, selected and placed in charge of various branches of

The Finest Hydrangea Bush on the Continent.

A portion of the lawn on the Morris & Wellington nurseries, at Fonthill, including one of the offices, may here be seen. The Hydrangea Paniculata Grandiflora bush in the center of the picture has for 12 years been recognized to be the finest on the continent. It is 12 feet in diameter and 10 feet high. The firm sells thousands of these bushes every year. They are sometimes planted as flower beds and cut yearly, although many prefer them growing as bushes, which is their natural growth. A birch cut leaf tree may be seen in the background.

the work. A number of these foremen, as well as their assistants, have been with Messrs. Morris & Wellington for years and have bought homes of their own in the vicinity of the different nurseries. During the summer, which is the slack season, some 75 men are constantly employed, which number is increased in the fall and spring to 200. Twice this number could be utilized at these seasons, were they available. Of course these men do not include the office staff or the hundreds of agents scattered throughout the Dominion.

To facilitate the proper management of the various farms, Mr. Morris, a number of years ago, connected them all by a private telephone system of his own. This was operated so successfully it was not long before other fruit growers and farmers in the locality desired to join the circuit. The outcome was that the Bell Telephone Company, which at first had rather opposed the move, stepped in and assumed control, with the result that upwards of 100 residents of the section are now enjoying the benefits of farm telephones. The yearly charge for these telephones is $15. Thus, we see, the farm telephone system has already made a welcome invasion of Canada. By means of the telephone Mr. Morris finds it possible to keep in close touch with his foremen and the work on the different farms.

The growing of the different lines of stock is greatly complicated by the special care which has to be given each. Soil adapted for one line of nursery trees or flowers may be entirely unsuited for others. For this reason the nine farms operated by Messrs. Morris & Wellington have each been chosen for their particular characteristics. On some, which are open and exposed, the hardy varieties are grown, while the tender species are produced in the nurseries that are more protected. Most of the farms contain several different soils. Each of these soils are in turn used for the production of the varieties of fruits and flowers for which they are best adapted. Long, and in some cases costly experience, has made clear to Mr. Morris the possibilities of these soils, and customers of the firm reap the benefit by receiving goods that have made a rapid and natural growth.

"We have found it necessary," said Mr. Morris, while speaking to The Horticulturist, in this connection, "to give the land, on which our stock is grown, frequent rests. Every year the crops raised are changed

A Beauty Spot at the Morris & Wellington Nurseries.

The illustration gives a small view of a block of two year hydrangea paniculata grandiflora growing in the nurseries of Morris & Wellington at Fonthill. This is one of the most useful plants grown, as it can be raised either as a plant or bush. The flowers are splendid for decorative purposes. When grown as plants the blossoms are larger and finer than when the hydrangea is allowed to grow as a bush.

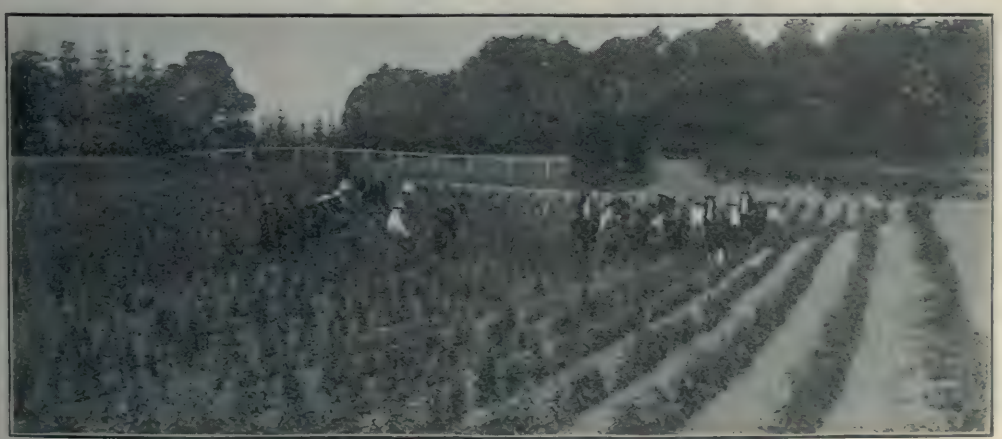
from one portion of the nurseries to another, and every fifth year the farms are changed. In this way frequent changes of soil are secured. As a rapid healthy growth is necessary, the land must be kept rich, which means a heavy expense for fertilizers. From Toronto alone we purchase $5,000 to $7,000 worth of fertilizers yearly. As we do not calculate to grow culls 40 to 50 tons of fertilizers are used per acre. This results in a rapid growth and thrifty stock.

"The demand for new and rare plants is increasing rapidly. Most of it has sprung up within the last ten years, more particularly the last few years, until now it has become one of the most important branches of our business. I remember when we only planted 500 elms. This increased to 1,000, a few years later to 3,000, and last year I planted 15,000. It is no uncommon occurrence for us to receive an order for $500 of ornamental stock from one man.

"This year we found it necessary, in order to fill the demand for rare shrubs, to make a special importation from Holland. Most of our seedlings are purchased from France, which in this line supplies the world. The stock is brought over in winter and arrives in good condition, via New York, being transported in frost-proof cars. Our last importation included 100 different varieties of evergreens alone.

"When we purchase or lease a farm, for growing nursery stock, it is generally necessary to underdrain it extensively. Several hundred acres of our farms have been underdrained. Even when we only lease a farm for a few years we find it pays to tile it. On one occasion we leased a farm of 100 acres and did not think it necessary to underdrain it. We lost enough through not doing so to have more than paid the expense of putting in the tiles, and I never intend to take the same chances again. In this connection it is rather astonishing to me to see how little the value of under draining is appreciated by some men. One farm leased by me was thoroughly under drained and when the lease expired the owner was given the benefit of these under drains. He did not think enough of it to even keep the drains open."

The description of how these immense nurseries came to be established, as given by Mr. Morris, is a most interesting one. "Over 30 years ago," said Mr. Morris, "I



Cultivating Young Peach Trees at the Nurseries.

The careful cultivation that is given the nurseries of Messrs Morris and Wellington, at Fonthill, is one of the secrets of the success of this firm. The illustration shows a block of one year old peaches, being cultivated, no less than eleven men with cultivators being shown at work in this small block. Great pride is taken by Mr. Morris in his pure bred horses, as he has four pure bred Shire stallions and over sixty horses altogether. Some of these fine animals can be seen in the illustration.

made my first start in this vicinity in the nursery business with 13 acres of ground. Previous to this I had been in business, but my health being poor I decided to start farming in this locality, where my wife had some relatives. The first year I planted an acre each of strawberries and raspberries. Some of my neighbors, who came around at that time, decided I must be nearly crazy, as they were satisfied that I would never be able to sell even a small portion of the crop. They even expressed pity for my ignorance.

"The following year, before I had received any returns from my first year's crop, to their amazement I increased my plantings to seven or eight acres. My sales from my first picking amounted to $1,300, most of the fruit being sold right on the place. For most of it I received 15 cents per quart for all the small fruit. This price caused quite a sensation, and people immediately wanted to buy plants. It was in this way that I started in the nursery business.

"In the course of a year or two the business increased and I took in Squire Hills, and the firm became known as E. Morris & Co., and continued in this way for several years. In later years Messrs. Stone & Wellington joined in with me. Finally the plantings were increased to 100 acres, including 50 of nursery stock. The firm has been known under the name of Morris, Stone & Wellington, during the past 25 years, but during the past two years, since the death of Mr. Stone, his name has been dropped from the firm."

The home farm at Fonthill is devoted principally to ornamental trees, shrubs and small fruits. Some of the fancy trees and shrubs grown are the Eagle Maple from Europe, choice varieties of Weeping Beech, Purple Beech, Fern Leaf Beech, Schewldi Maple, Rittenbachi Maple, Variegated Maple, Russian Maple, Weeping Norway Cypress, Maiden Hair tree and many others.

During the past few years Canada has rapidly forged to the front as a producer of many varieties of fruits and flowers. Much of the success of Canada's growers has been due to the active cooperation and assistance of such well known and reliable nursery firms as that of Messrs. Morris & Welling-

Shipping Nursery Stock at the Morris & Wellington Nurseries.

One of the busiest periods at the Morris & Wellington Nurseries, at Fonthill, is when the nursery stock is being boxed, preparatory to shipment. This work is done on a large space of land near the office of the main nursery at Fonthill. Surrounding this is a large grove of pine trees, which affords close protection to the men while at work. Some idea of the large number of men employed by this firm will be gained by the illustration.

ton, whose aim has been and is to please and satisfy their customers. The firm's large business has been built up as the result of hard work and careful management. More than once thousands of dollars' worth of tender stock has been destroyed by hail storms, extremes of heat, and cold weather, etc. In spite of this the management has kept right on. Such reverses have in the end only increased the firm's usefulness by the valuable lessons they have taught. With its immense business, established reputation and years of experience the firm of Messrs. Morris & Wellington will undoubtedly play an important part in the further development of Canada's horticultural interests.

DUNDAS COUNTY AS A FRUIT DISTRICT

W. T. MACOUN, CENTRAL EXPERIMENTAL FARM, OTTAWA.

THAT part of Dundas county within four or five miles of the St. Lawrence river, and in the neighborhood of Iroquois, Irena and Dundela, is a fruit district which has not been brought into public notice as much as it deserves. A recent visit at the orchard of Mr. A. D. Harkness, of Irena, the energetic director of the Ontario Fruit Growers' Association for that district, and that of Dr. Harkness, his father, as well as others in that district, proved most interesting.

The principal object of my trip was to see the orchards of McIntosh Red apples, and I was not disappointed. Between them Mr. Harkness and his father expected to have about 100 barrels of this delicious apple. The trees at that time were well loaded, and one tree was pointed out to me which would probably yield seven to eight barrels of fruit, all the apples being perfectly clean and of good size. The crop of Fameuse was also large and the fruit clean and large.

The method adopted by Dr. Harkness in the care of his orchard is to keep it in sod and top mulch with manure. The trees certainly looked well. Washing soda is used instead of lime in making the Bordeaux mixture for spraying, as it stains the fruit much less than the ordinary Bordeaux mixture, is easier to make, and appears to give quite as satisfactory results.

The orchard of Mr. A. D. Harkness is a young one of 15 acres, part of which is coming into bearing, most of the trees being McIntosh Red and Fameuse. They are looking very well. Both Dr. Harkness and his son make their own barrels, as they find this plan more economical, and they are always sure of having a supply of barrels when needed. A fine fruit storage and packing house is being erected by Dr. Harkness. His method is to get his fruit under cover as soon as possible after it is ready to pick, and then pack afterwards. Both Dr. Harkness and his sons are strong believers in the value of bees in the orchard, and there is a large apiary managed by one of the sons.

In striking contrast to the Harkness orchards was one visited within an hour afterwards. Here was seen the original McIntosh Red apple tree now many years of age, which a few years ago was almost destroyed by fire. One branch is still alive with a little fruit on it, but the tree has not long to live. Close to the old tree is an orchard of McIntosh Red apple trees, the trees of which were loaded with fruit, and the whole orchard containing probably over 200 barrels of this variety. While the fruit was of fair size, practically every specimen was spotted, and by picking time would probably be worthless. These trees had not been sprayed.

Other orchards were seen during the drive, most of the trees being McIntosh Red and Fameuse. Unfortunately, spraying is not very general in this district, and in most orchards the fruit promised to be more or less spotted.

FIGHTING THE SAN JOSE SCALE WITH LADY BEETLES

GREAT interest was manifested when it was announced, over a year ago, that the United States Department of Agriculture had made an importation of Chinese lady beetles, the natural enemy of the San Jose scale, to ascertain if the beetles could be utilized as a remedy for the scale. Since then little has been heard in regard to the importation.

Hearing that Prof. C. F. Hodge, of Worcester, Mass., had been conducting some tests with the beetle The Horticulturist recently wrote him asking for information. The following interesting reply has been received:

"My experience with the Chinese lady beetles has been so limited that I fear I can not be of much assistance to you. In May, the Department of Agriculture sent me 25 of the beetles to colonize here, but all but nine were dead on arrival. We released them on an infested tree in the middle of an orchard of several acres, and I have always been able to find some of the beetles on the tree on my weekly visits. I have seen no evidence, however, of breeding, and fear the season has been too cold and wet for them to do well. Possibly all the females were lost. However, the trees are large and old and the beetles hard to find, but I still have hopes that a colony may show up later.

"August 4 I received six more from Dr. Marlatt, all in good condition. I have seen these mate, and so can tell the males and females apart, I think. I already have a number of eggs from these last, and hope to rear a colony in confinement. The beetles certainly eat the scales like a devouring fire. We have been tracking them on the tree by the paths of scales scraped off. If we can only get them acclimatized here I think they will prove of great value."

Three Methods of Protection

FRANCIS WAYLAND GLEN, BROOKLYN, N. Y.

THROUGH the columns of The Horticulturist I observed last spring that the fruit growers of Ontario suffered heavily from the depredations of field mice. From 1846 to 1861 I was engaged in the nursery business at Rochester, N. Y. In that climate the snow often covered the ground before the surface was frozen. The mice then burrowed under the snow and attacked the trees.

We had three ways of dealing with the field mice problem. First, we tramped the snow very hard about the trees; 2nd, we wrapped waxed paper about the base of the trees with poison in the wax; 3rd, we sawed some pine timber, 1¾ square and six inches long, and bored holes in them 1¼ inches in diameter, 5 inches deep, and filled the holes with dry Indian meal mixed with arsenic. We packed the meal very hard and laid one of these blocks by each orchard tree and in the corners of the fences. In this way we saved our trees from destruction by mice.

Transplanting Evergreens

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH, ONT.

EVERGREEN trees may be planted later in the spring and earlier in the fall than deciduous trees, but our experience with both classes of trees is, that they are best planted early in the spring before growth starts. The ground is then usually in a moist condition and most suitable for the reception of roots. Trees properly planted at this time seldom fail. The later transplanting is done the more care is required to avoid injury from drought and exposure to hot sun and drying winds.

The circulation of the sap in evergreens is practically the same as that in deciduous trees. Roots take in soil moisture from the ground which is transferred from cell to cell, through the sap wood, to the branches

Fameuse Apple Tree in Full Bearing.

A Fameuse apple tree in the orchard of Mr. Harold Jones, of Maitland, who may be seen in the illustration, is here shown. Last fall this tree, which was planted in 1881 and commenced to bear in 1888, yielded 13 barrels of fine apples. It is one tree out of many in an orchard of four acres which has been bearing continually since 1888. The average yearly returns for the four acres since 1884 have been $800. By spraying, Mr. Jones has been able each year to secure 90% of high grade fruit free from scab.

and leaves, where it is acted on by the sun. The excessive moisture is given off through the leaves, and the prepared plant food returns just beneath the inner bark, forming the cambium layer, the maturing of which adds a new layer to the wood on the outside of the wood and a new layer of bark on the inside of the bark.

A Most Effective Protection against mice in the orchard is furnished by wrapping building paper about the trunk of the tree for one or two feet, tying it in place with stout cord. A few correspondents have used a light veneer, such as is used for making baskets, cut in pieces about 6 x 18 inches, and held in place by a stout cord. These cost about $4 per 1,000, and will last many years.

Keeping Snow Apples

We have a good crop of snow apples this year, but always have difficulty in keeping them until Christmas. Would like to know when to pick and what to do after that. I have had good snow apples in February bought from the stores here, and think we should be able to keep ours longer than we do.—(A Subscriber, Hamilton.

A low temperature tells the secret of keeping apples a long time crisp and good. Our cellars are usually too warm. Snow apples should be gathered in October, before they become too ripe, and stored immediately at a temperature of 33 deg. F.—(W.

Gave Good Results — In view of the general interest that is being displayed in the relative merits of the various power sprayer outfits being used in Ontario this season, it is interesting to hear that Mr. W. H. Dempsey, of Trenton, who has been giving the Wallace Power Sprayer a thorough test, says it has given him perfect satisfaction. When carefully looked after, Mr. Dempsey says, this sprayer is no trouble to handle. . On light land, with a small team, he has been able to keep up a pressure 75 pounds. Labor being hard to get, he took the sprayer out alone and found he could cover more ground with it than three men could do with an old hand pump, which he used up to the present season. Mr. Dempsey is satisfied that power sprayers are required by growers who have large orchards.

We need a new electric railroad in our section; express charges are far too high.—(R. J. Lighittle, Lincoln Co., Ont.

CANADIAN FRUIT WINS HONORS AT ST. LOUIS

T. H. RACE, CANADIAN COMMISSIONER'S STAFF, ST. LOUIS, MO.

RECENT shipments of new fruit from Canada have greatly brightened up the exhibit at St. Louis. The apple display comprised a considerable number of varieties from the crop of 1903, still in excellent condition.

One thing, the Canada fruit exhibit at St. Louis has demonstrated is the superiority of the Canadian apple in point of keeping qualities. The Spys, Russets, Ben Davis, Canada Red, Scarlet Pippin, Cranberry Pippin, Lawver and Red Cheek Pippin, all to be seen in the Canadian exhibit at this time, are as bright and crisp as when they were put in cold storage. There are still, according to Mr. Knowlton, about 250 cases in cold storage after giving away nearly 100 cases on "Apple Day," October 4. Canada, in fact, was the only exhibitor who was able to contribute wholly from her stock of 1903 to that general give-away. And, it was not discovered by the thousands of people, who were sent off rejoicing in the possession of a good apple, that they were munching a Canadian fruit a year old.

The finer fruits, so-called, such as peaches, pears and grapes, have arrived throughout the season in pretty good shape. There are some very fine peaches and grapes on display from Mr. L. Woolverton, of Grimsby, and some excellent pears from Mr. W. Warnock, of Goderich. The last named contributor also sent with his consignment a mammoth squash weighing 403 pounds. We had a good sized squash before, from Mr. W. Rennie, weighing 305 pounds, which was attracting a good deal of attention. The one from Mr. Warnock is proving an eye-opener to the Americans down here, and they are beginning to believe now that Canada is really a country of big things. A squash is not a fruit, and it was the fruit exhibit that I started to write about. During October, Mr. Knowlton has been removing much of the fruit preserved in jars, from the tables and replacing it with the fresh stock arriving. He found that it had discolored so much as to be unattractive, and thought it better to put it out of sight and replace it with something more sightly.

The state of Wisconsin is making a very showy display with the Northwest Greening, the McMahon White, Wolf River and Alexander, all good show varieties without much quality. This Greening and the McMahon seem to do particularly well in Wisconsin, as the Ben Davis does in Arkansas. My observation is that the Ben Davis grown in Arkansas is superior in quality to that grown anywhere else in America, and almost equal in size to that grown at the Pacific Coast.

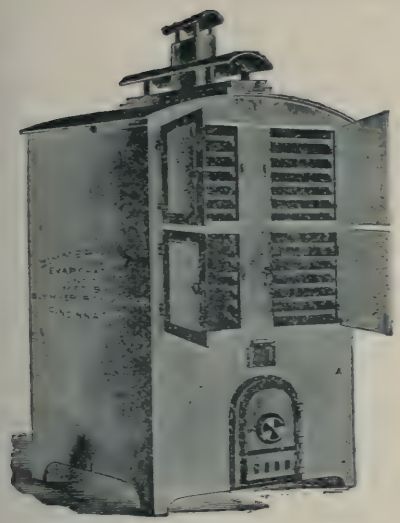
The awards for the exhibits in the palace of horticulture have not been announced yet, but I understand that the committee on awards has recommended a grand prize for the general make-up, arrangement and comprehensive collection of the Canadian display, and a gold medal for general quality of apples.

We are frequently asked the question what Canada is making such a "great spread" down here for, and our answer is, to draw attention to the wonderful resources, capabilities and productiveness of our country generally, and to attract settlers to our Northwest provinces especially. In the furtherance of that great and patriotic purpose the Canadian fruit exhibit and those who have had charge of it have contributed no small share.

Apple buyers do about as they please. Very few growers ship their own fruit, therefore the majority realize small profits, which are discouraging, and lack of interest and little attention to cultivation result.—(C. L. Olmsted, Wentworth Co., Ont.

The Horticulturist is one of the best monthly publications I know of. Its reports on the fruit markets of the Dominion and also the English market are worth more than ten times its subscription price to any fruit grower.—(John Spencer, Henrysburg, Que.

UTILIZING OUR SURPLUS APPLES



Zimmerman Fruit Evaporator.

McCARTHY, of the North Carolina Experimental Station, publishes a bulletin on the above subject which contains some good hints. Among other things he describes an evaporator suitable for farm use. He says:

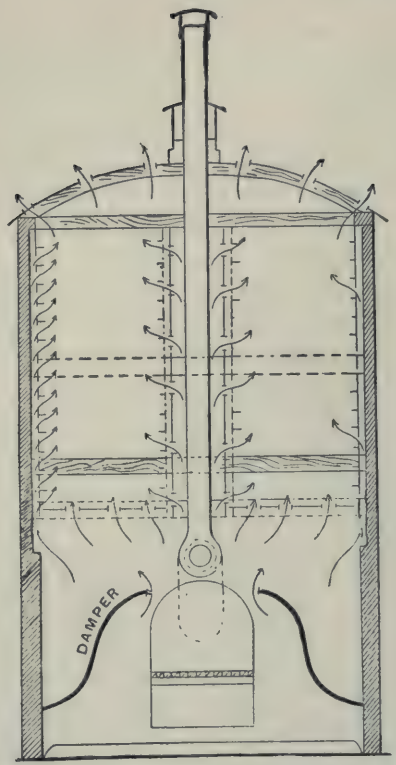
The possibilities for expansion in apple growing are almost unlimited. When a fair profit is assured, as it must be by the general introduction of improved evaporators, and modern methods for utilizing the lower grades of fruit, we may look for a great increase in orcharding, and as a result, greater prosperity for the mountain region, where our best apples are grown.

The experience of practical apple-growers seems to show that on a commercial scale no evaporator will pay which turns out, in a day's run of ten hours, less than 300 pounds of dried fruit. In practice it is customary to keep the evaporator going night and day during the season.

One of the best evaporators for farm use is the Zimmerman, made by the Blymer Iron Works Co., Cincinnati, Ohio. This machine is built entirely of metal, and is therefore fire-proof. There are several styles on the market, differing mainly in size, but no one who evaporates for the market should buy a smaller machine than the No. 3, which consumes about twenty bushels of fresh fruit in ten hours. This machine costs about $100. The No. 4 will work up 30 to 40 bushels in ten hours, and costs about $170.

In large factories it is customary to bleach the fruit after peeling, by submitting it to fumes of burning sulphur. But such fruit is not as wholesome nor palatable as that unsulphured. If the fruit is dropped into a tub of weak salt brine as soon as sliced it will not discolor, and while retaining all the natural flavor of the apple, will appear in the dried state nearly as white as the sulphur-bleached fruit. The brine is made by boiling for ten minutes one pound of clean table salt in 16 gallons of water. Carefully skim off the scum which rises, and allow the water to cool before using. The fruit is simply dropped into the salt bath and allowed to soak about five minutes. It is then removed, drained for a few minutes and placed in the evaporating trays. The salt does not taste upon the finished product. A fresh bath should be provided every four hours.

The trays upon which the fruit is placed are bottomed with galvanized iron wire. The fruit is placed upon these in a thin layer. Wood is always used as fuel in the portable evaporators. The length of time required to dry the fruit differs with the different varieties of fruit, and with the temperature and other factors, which can be determined only by practical experience. The fruit is properly dried when it does not show moisture when broken. It must not, however, become so dry that it will snap or crackle when broken between the fingers. After removing from the evaporator the fruit is piled on a clean floor three or four feet deep, and allowed to sweat for several



Zimmerman Evaporator, Sectional View.

days. It is then ready to be boxed. The best grade is always sent to the market in new boxes, lined with white paper. Cheaper grades are marketed in new barrels. The cores and parings may be dried and packed in barrels. There is a large demand for this grade for manufacturing into jelly. But as a rule the North Carolina farmer can make more by fermenting the cores and parings and making vinegar out of them.

Apples which are too small to evaporate can be profitably worked into other merchantable products.

APPLE BUTTER AND MARMALADE.

There is a good local demand for these products. In making apple-butter and marmalade the fruit, without paring, is sliced or chopped, and boiled until soft in an old fashioned heavy, iron kettle. Place the chopped fruit in the cooker, and cover with juice of same fruit. Plain water will do, but this entails more work in evaporating the water. Boil until the fruit becomes soft enough to be easily run through a colander or sieve. Pass through colander to remove seeds, skins and cores. Add sugar to taste. The amount of sugar required depends upon the variety, natural sweetness, and ripeness of the fruit used, and also upon the judgment of the operator, and the demands of the trade. Usually in making apple marmalade, to every 100 pounds of apple paste from the colander, 30 pounds of sugar is added. Cook again until the marmalade is reduced to the desired constituency. Usually 100 pounds of fruit and 8 gallons fruit juice, to which is added 30 pounds granulated sugar make 110 pounds finished marmalade.

Fruit butter differs from marmalade only in being spiced, and using only 20 pounds sugar to 100 pounds fruit. Both these products keep well in ordinary covered wooden pails, if kept in a cool, dark place. The best marmalade is made from crabs.

JELLY.

Pure fruit jellies have become scarce and high priced on the market. The preparation of jellies can be profitably carried on in connection with canning fruits. Fruit too ripe for canning can be utilized for jelly making. The fruits best suited for jelly making are apple, pear, peach and plum. The currant also makes fine jelly.

To make jelly, only sound, fully ripe fruit may be used. Apples and pears are first grated, and then crushed in a press, preferably of the hydraulic type. The juice as it runs from the press is filtered through a horse-hair sieve, or a layer of finely chopped and well washed oat or rye straw. Sugar enough—ordinary granulated sugar is best—is added to bring the density of the juice up to twenty degrees on the saccharometer.

The sweetened juice is then at once run into the boiling pan. A better grade of syrup and jelly can be made in a pan or boiler which excludes the air and prevents the formation of caramel. The ordinary pan as used in boiling sorghum or maple sap for syrup is equally suited for jelly making. The best form of pan is a long covered and ventilated wooden trough, having heavy copper steam pipes running lengthwise of the box. The steam in the pipes must be under a pressure of not less than eighty pounds. The South Allen Evaporator, made at Mt. Gilead, O., is of this type, and gives good satisfaction. Whichever pan is used, the heating surface must be hot enough to keep the juice boiling vigorously from start to finish. The scum thrown up by the boiling juice must be carefully skimmed off. Not more than eight minutes' boiling should be required. Longer boiling darkens the product, and also reduces its sweetness. The degree of condensation required to jelify differs with different fruits. Usually, in making apple jelly, five parts of juice make one of jelly. To one hundred pounds of clear juice is added about twenty pounds of sugar. The product is forty pounds of sweetened jelly. This can be sold at a handsome profit.

Cause of Apple Spot

A. W. PEART, BURLINGTON, ONT.

IN the October issue of The Horticulturist Mr. R. J. Messenger takes issue with the opinion I advanced to The Horticulturist in relation to the apple spot, viz., that "clean cultivation tends to promote the scab." Mr. Messenger erroneously assumes that this opinion is based on one or two isolated cases pointing in that direction. On the contrary it is a growing conviction founded on the experience and observation of many years.

In my opinion there are several other conditions which tend also to promote the spot, such as the variety of apple under consideration, crowding of trees, lack of free circulation of the air, unsuitable soils, etc. The Snow and Holland Pippin appear to have a strong predisposition to the scab, while the Golden Russet and Blenheim Pippin are comparatively immune.

Last year the cold wet season was charged with the prevalence of the spot. This year, which has probably been colder and wetter, the apples are very much cleaner in this district. And so it goes. It does not seem that the bottom of the question has yet been reached. Fruit growing is still in its experimental stages, and opinions given on very many of its problems must necessarily be tentative rather than positive.

The Apple Package

FOR soft early apples the barrel is quite out of the question. It holds too many, and they crush each other as they ripen by their own weight. Besides, no one wants a barrel at a time of such perishable stock. At one time we thought the half-bushel package best for Astrachans, and put up our crop for export in such boxes, but the buyers advise the bushel box as best for all apples. Fortunately our association at its last meeting agreed on a box 10 x 11 x 20 inches, inside measure, for the use of Ontario fruit growers, and this will no doubt suit the Northwest trade for early apples. British Columbia apple shippers, who are competing with us for the Northwest trade, will probably agree to a bushel box of the same size, as indeed it differs very little from the box already in use in that province. This box is offered us at about $12 a hundred, a price not exceeding the cost of the barrel package for the same quantity of fruit.—W.

DISEASES OF THE GRAPE

PROF. W. LOCHHEAD, ONT. AGRI. COLLEGE, GUELPH.

THERE are several diseases which are more or less commonly known in our Ontario vineyards. The most common disease this year has been the downy mildew, or, locally known as brown rot. This disease produces a thick white felt on the under surface of the leaves, stems, and fruit. The treatment outlined in this issue for black rot will prevent the action of downy mildew, but fewer sprayings may be required.

The bird's-eye rot or Anthracnose was occasionally observed this season, but is not doing much injury. It yields readily to treatment by spraying, and should not be feared when spraying is regularly practised. It is important that the diseased wood should be removed.

Occasionally the powdery mildew does some damage to our grape crop. It forms a cobweb-like growth on the upper surfaces of the leaves, and occasionally does considerable harm to fruit. Spraying with the Bordeaux will prevent injury from this disease. In spite of the presence of these pests it is clear that none of them can compare in damage with the black rot, which is extremely difficult to control.

THE MILDEWS OF GRAPE.

Regarding the mildews of grape, the downy mildew, or the brown rot as it is called in some districts, is by far the more difficult to treat, inasmuch as the threads of the fungus live within the tissues of the plant, and only come to the surfaces to fruit. Besides, a thick-walled winter spore is produced within the tissues of the leaf, and this is very difficult to destroy unless measures are taken to plow the leaves under deeply or to burn them carefully. The powdery mildew which forms the cobweb-like growth on the upper surfaces of the leaves and fruit was this summer the cause of considerable destruction in the Grimsby district. At one time it was supposed that the cause of the rotting of the grapes in this district was the downey mildew, but after examination I found that the most abundant fungus present on the leaves and fruit was the powdery mildew. This is a surface-feeding fungus and can readily be controlled by frequent sprayings.

The white rot, which Prof. Selby, of Ohio, alludes to in one of his early bulletins, is in all probability a phase of the black rot, and he thinks he made a mistake when he called it the white rot, for he has not been able to find it in late years.

Many of our fruit growers have come to the conclusion that dust spraying would be a very effective method of dealing with the fungous diseases of the orchard. They feel that this method of applying a fungicide could be used in weather which precludes the liquid application. This view is not held by Prof. Selby, who has had a great deal of experience with spraying operations and is one of our best informed authorities on the diseases of grapes, as he believes dust spraying will never be as successful as the liquid spray. The fine mist produced, he believes, is far more penetrating than the fine dust of the dust sprayer. Our orchard men should not run hastily into the dust spraying before more is known about its merits.

I GROW A FEW STRAWBERRIES and find that the Williams is the most productive, but that Bubach is better in quality and more suitable for table use. I always put on a heavy mulch of straw in the fall to protect the plants in the winter.—(Dr. McCallum, Smith's Falls, Ont.

In growing carnations I generally use a top dressing of wood ashes and bone meal mixed with soil. I put some salt and quite a lot of lime in this. The salt serves as a food for the carnations and also prevents rust. The lime acts as a combatant to insect pests.—(H. Neal, Ingersoll, Ont.

Advice for a Beginner in Grape Growing

A party who has purchased 60 acres of land in the Niagara district with the intention of raising fruit on an extensive scale, including 10 acres of grapes, wrote recently to Prof. H. L. Hutt, of the Agricultural College, Guelph, asking for information in regard to the growing of grapes. The questions asked included the cost of posts and wires, number of vines per acre, the years required before the vines bear, the price of good vines, average price of grapes per ton, etc. The following answers were given by Prof. Hutt:

There are a number of your questions which could be answered far more satisfactorily if you would consult some of the leading fruit growers in your section.

Grape vines are usually planted in rows ten feet apart and the vines ten to twelve feet apart in the row. From this you can easily figure out the number of vines required per acre, according to the distance decided on.

Whether two or three wires are used for the trellis will depend upon what method or training you intend to adopt. The Kniffen System requires but two wires, while the Fuller or renewal system usually has three wires. I believe most of the growers in your neighborhood are growing on the latter system, although the former is an excellent one, and one which I rather prefer. These two systems you will find fully described in some of the recent numbers of The Canadian Horticulturist. This is a journal you should take if you are not already doing so.

Vines often begin bearing the first or second season after planting, and if well managed should be able to bear a fair crop the third and probably a full crop by the fourth year. The average yield per acre varies considerably, not only with the varieties, but with the attention given them. Three or four tons per acre is not an unusual yield for Niagara and Concord, and it often goes far more than this.

I cannot speak definitely with reference to price of vines. Usually we can get first-class vines in quality for $4.00 per hundred. The price which can be realized per ton varies so much, not only with the season, but with the variety and the grower, that it is not safe to give figures. I think you would learn far more along this line from growers in your neighborhood than from any other source.

The cost of maintaining trellis is not usually a heavy one. If trellis is properly put up at first but little labor and expense should be required to keep it in repair from year to year. The market for grapes is wide, as they can be shipped long distances if properly packed. I have no doubt that the Northwest will soon afford an excellent market for all of the grapes that we can supply, but the most serious drawback so far has been the excessive cost of transportation. This has been considerably lowered recently, which will materially add to the profits of the fruit grower. Prices for grapes have been low for some years past on account of the heavy crops, but this year they are likely to be much higher than usual on account of the lateness of the season, slow ripening of the fruit, and also the loss of a large portion of the crop from grape rot.

Ever-bearing Strawberries

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

DURING the past ten years nearly 400 varieties of strawberries have been tested at the Ontario Agricultural College, among which were a number that have more or less of the ever-bearing habit. None, however, have ever been found which were considered worthy of recommending on account of this peculiarity.

In favorable seasons many of the varieties in general cultivation will bear a second crop, but there is seldom enough of these berries to be of value. As the fruit comes in at a time when strawberries are out of season, and the market full of other fruits, it is not usually a profitable crop.

GAS PROOF PLANTS

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

THE question is often asked "Are there any plants that are proof against the harmful effects of coal gas?" To this question only one answer can be given, viz: "That no plant life can long resist the perishing effect that an excessive amount of coal gas has on plant life in general."

There are, however, some plants that will endure this evil for a longer period than others. Generally speaking, plants that are natives of countries where a dry, arid temperature prevails for a great part of the year are among the best gas resisting plants that we have. The class of plants known as succulents, or plants that have the power of retaining moisture in their growth and leaves for a great length of time without being given a supply of water at the roots, are almost invariably the best plants to resist he fumes of coal gas. Unfortunately, these succulent plants are not usually of a very graceful or decorative character, although some of them are very pretty and effective as window or house plants.

Among the best and most ornamental of these plants that will grow in an atmosphere where the fumes of coal gas are prevalent, the the Sansevieras or Bowstring Hemp plants, natives of tropical Africa and he East Indies. The variety most commonly known to plant growers, and in fact the only one usually offered by commercial florists is the Sanseviera Zeylanica, a native of the East Indies. This variety is one of the best gas resisting decorative plants that we have. It will resist the fumes of gas for a very long time, and given proper treatment will grow and flourish much better in the dry, arid atmosphere of a dwelling house, than it will when treated as an ordinary window plant, or grown in a greenhouse and given ordinary greenhouse treatment.

As a proof of this, I was under the necessity some 18 years ago of supplying plants to place on the top of some ornamental pedestals standing in a large dining room, where eight to 20 gas jets were burning almost every evening during the year. An imitation log fire place in the room was also frequently lighted with gas, so that there was no question about the fumes of gas being prevalent. Two plants of Sanseviera Zeylanica about 18 inches in height in five-inch pots were placed on the top of these pedestals in 1886, and were kept in the same position until very recently. The plants were only removed about every two or three weeks to a sink to have a thorough watering and to sponge the leaves. The growth of the plants when finally removed was over three feet in height, and instead of two or three leaves as when placed there, four or five additional leaves had been added to each plant.

Keeping the soil in which the Sanseviera is growing in an almost dry condition, and giving the plant a rather light sandy soil to grow in, with plenty of drainage at the roots, are the main essentials necessary to be successful with these gas-resisting house plants. A wet sodden condition of the soil will be sure to have a bad effect and soon kill the plants. Too much water usually accounts for the indifferent success many plant growers have with these and almost all succulent plants in windows or greenhouses. It is only when the plants are kept in a high tropical temperature that most of the succulent plants grown in greenhouses will live and thrive in a moist atmosphere.

The tallest plants in the centre of the accompanying cut of a small collection of succulent plants shows a small specimen of the Sanseviera Zeylanica. The leaves of these plants are very prettily marked, which has sometimes led to their being called the Zebra plant. The Sansevieras, like most succulent plants, are very slow growing. This peculiarity, and the fleshy moisture retaining nature of their growth and leaves ac-

count chiefly to their dislike to an over supply of moisture at the roots.

Amongst other succulent plants that have a very nice appearance in a window are varieties of the Agave. A small plant of the variegated type of Agave Americanus is shown in the cut. The two silvery marked, rosette shaped plants are variegated varie-

Gas Proof Plants.

ties of the Echeveria or Cotyledon secunda glauca, whilst the larger and darker colored rosette shaped plant is the Echeveria metallica. Another plant seen in the collection is the Gasteria maculata or Hound's Tongue plant, with its long spotted leaves branching out from either side of the centre of the plant. Another odd looking plant showing a long flower spike is the Africa imbricata; this is also a very enduring window plant if not given too much water.

Many varieties of Aloes, Haworthias, as well as some varieties of Cacti make splendid plants for resisting the fumes of gas, but like most of the plants before mentioned are not of a very highly decorative or graceful habit. At the same time they are very useful to form the basis of a collection of window or house plants and are a very interesting class of plants, as well as very enduring, when given proper treatment. When relieved here and there with a pot of bulbs in flower or a plant or two having more graceful foliage, they have a unique and attractive appearance in a window. The chief reason so few plant growers succeed in the culture of many of these succulent plants is from giving the plants too frequent and too copious waterings.

Among the more popular and better known decorative house plants that will endure for a time the baneful effects of coal gas are some varieties of palms, aspidistra, begonia or ferns.

Varieties of the Phoenix or Date palms will withstand gas for a longer period of time than most kinds of palms. Phoenix rupicola, P. spinosa, P. sylvestris, and the true date palm Phoenix dactylifera, being about the best varieties to withstand the dry arid atmosphere of the house. The Kentia and Latania palms, owing to the thinner texture of their leaves, succumb quicker to the effects of gas fumes than do the Phoenix palms, although the latter are not as graceful in appearance as are the Kentia and Latania palms.

Aspidistra lurida is one of the best house plants we have amongst foliage plants. Its hard glossy green leaves, if kept sponged frequently with clear tepid water, will resist for a long time the effect of gas fumes. The rubber plant, Ficus elastica, is another good enduring plant for the house. Frequent sponging of the leaves of these two last named plants, as well as those of the palms is necessary, if the most enduring and pleasing results are to be attained in their culture.

Amongst begonias the most enduring is Begonia manicata aurea, B. manicata and P. sanguinea. None of these begonias, however, will flower successfully where there is the slightest indication of coal gas fumes. Their foliage, however, is very attractive and enduring.

The Boston Fern is one of the hardiest and most enduring ferns for the house. Pteris cretica or the Cretan fern, Pteris Wimsetti, Pteris Hastata, Aspidium Tensi-

mensse and Aspidium coriaceum or Leather fern, will also keep in good condition much longer than many other varieties of ferns in the house.

There are some other plants that might be mentioned as being particularly adapted to endure for a length of time the baneful effects of coal or illuminating coal gas. Those I have mentioned, however, are among the most enduring of our window and greenhouse plants.

In conclusion I would strongly advise those who live in dwelling houses where the fumes of gas is quickly fatal to plant life, to at once remedy the evil; for where plant life cannot exist in a fairly good condition for a reasonable length of time human life is certainly more or less endangered.

SOME CANADIAN WAYSIDE FLOWERS

CHARLES H. K. BAILLIE, WINONA, ONT.

WITH the advent of a new by-law in this part of Ontario, urging the destruction of wayside weeds, one is tempted to suggest that there are many so-called wild flowers which are worthy of cultivation. There are many indeed classed as weeds which would never have had such an appellation had they at some time kept within bounds and not escaped for a wilder and freer life. There is no doubt that many are emigrants, the seeds of which have been carried away from their native habitat, either in consignments of hay or fodder, or perhaps intentionally to grace some garden or to be planted for their usefulness. This year, with the approach of spring, I was tempted to visit the mountain side west of Grimsby, and the wealth of the earlier flora was somewhat surprising to one fresh then from the English woods.

There I found the beautiful Dog's Tooth violet, the Yellow Erythronum, a change from the much cultivated mauve variety. There were the Hepaticas, and a variety of violets in three or four different colors, which covered the ground in all directions. All these, and many others of the spring flowers, have their own peculiar and sometimes very unsuited names amongst the children, but even if classed as "superior weeds," they are surely worthy of a corner in the "Garden" at a time when color is so welcome after the one continual glare of winter's shroud of white. With the summer, and its crowd of garden bloom, we are apt perhaps not to notice so closely these wayside flowers, but I have met many which have graced the old English flower borders, and I felt pleased to make their acquaintance again so far away from the garden where I first knew them. I have found growing wild, Lilium Tigrinum (the Tiger lily) drooping its handsome head as if ashamed of being recognized in all its wildness.

I have met too the little Hypericum (St. John's Wort), with its thickly covered heads of golden bloom, and by its side the Evening Primrose (Oenothera), small perhaps, and no doubt the wildest of its specie, but I predicted for it almost as striking a bearing as some of the more conspicuous cultivated varieties, were it tended and put under cultivation. Of the commoner "weeds" there is an endless field, quite as interesting perhaps, but too well known as "weeds" to be elevated to the flower border. I am thinking now of the Chrysanthemums (Wild Daisies—Oxeyes and Marguerites), which in some parts are most progressive little pests, and seem to have an insatiate longing for travel. There is the wild Achillea Antirrhinum (toad flax), the beautiful blue flowered chicory, and so many others, which seldom find favor in any save the children's eyes.

The Care of House Plants

E. MEPSTED, OTTAWA.

HOUSE plants are almost a necessity. They are decorative; they are pretty and they are cheering in the long winter months. What equals the pleasure of the whole family when father brings up a pretty plant, however inexpensive it may be? However, to have them thrive in the rooms in winter they need lots of attention.

There are quite a few drawbacks to contend with. Among the worst is coal gas from the stove or the smallest escape from illuminating gas. This is very fatal to plant life. Then to many plants the dry air in the room is very hard; not only does the plant lose the moisture natural to it, but its greatest enemy, the red spider, flourishes on it. Electric light and furnaces have, however, done away with coal gas to a great extent, and we must do our best to help in the matter of moisture. So we must sponge many of our plants at least once a week.

The palms, especially Auracarias and Boston ferns, can hardly be sponged, but they can have a good rinse. This cleans the leaf, wards off insects, and gives them a little taste of that moisture they love.

Begonias and some others do not like water on their leaf, neither does the red spider, so early attack them. The most particular thing in house culture is the watering. So many people think they are doing their duty if they give their plants a little water every day. This is altogether wrong.

When you find your plants dry they need water. This can be easily learned by tapping the pot with the knuckles and getting a ringing sound for dryness and a dead sound when it is wet enough, or by rubbing the soil on the top of the pot with the finger; if it feels moist and sticks to the finger it is wet enough, but if it feels dry and slightly dirty, it wants water. Water it well, and be sure the water has gone through the pot. By half watering, that is not giving enough water to go to the bottom, the roots are drawn to the top for a drink instead of going down, where they will get both food and drink. Never let plants stand in water either in saucers or jardinieres, as it will in most instances be fatal to your plants.

*Extract from a paper read recently before the Ottawa Horticultural Society. Societies are invited to send The Horticulturist copies of the papers read at their meetings.

Potting Plants for Winter

IF possible procure new pots. Plants will do much better in them. Soak the pots in water a short time before putting the plants in them, as considerable moisture is absorbed by new pots. If sufficient water is not given the plants immediately after potting they often suffer at that period for lack of moisture.

When old pots are used, wash them thoroughly inside and out before potting the plants. See a small hole is made in the bottom of each pot before putting the plant in. A layer of small stones, bits of broken china, etc., in the bottom of the pot will ensure good drainage, which is most essential. A small bit of charcoal in the bottom of the pot is also an excellent thing.

In repotting, many plants you will find to have but few roots; these require a portion of the ball removed—place them in smaller pots, encourage them to make new roots, and in a short time you will have fine healthy tops. After they have been given proper drainage, put in a little soil (care being taken to have the plant a little below the surface of the pot, sufficient to allow for watering); place the plant in the centre of the pot with one hand and with the other heap up the soil loosely in the pot; give the pot a sharp rap, pressing the soil with the thumb firmly around the plant. In potting large plants, a flat stick must be used to firm the soil around the plant, otherwise it will not be packed as firmly around the edges as is essential for good results.

Have the soil in proper condition, neither too wet nor too dry. If too wet, it will bake and roots will not penetrate it. If dry, like dust, you cannot pot with that firmness required.

Suitable compost for nearly all plants is composed of three-fourths turfy loam, equal parts of cow manure and leaf mould with a little bone meal and sand added; mix well together, and it is ready for use, and suited for roses, geraniums, fuchsias, heliotropes, verbenas, pansies, and all free-growing plants. Turfy loam is the top sod from all pastures well rotted. Leaf mold is decayed leaves, which you can get from the woods.

Carnations

CARNATIONS can be grown successfully in the garden by starting the seed in cold frames in July or August and leaving the plants there over winter. In the spring set them out in beds that are well raised so that water will not lie on the ground.

If the soil is rich about 75 per cent. of the plants make good growth, but will not bloom. During the succeeding winter they should be well protected by a covering which admits some air but protects them from the frost. A covering of dead leaves is as good as any. About June 15 or July 1 of the following season they produce an abundant and fragrant bloom which lasts for three or four weeks.

The difficulty in this country is, that if they do not bloom the first season they become winter-killed and there is practically no bloom. The best varieties are Red Grenadin and Early Dwarf Vienna (white and variegated). Only about 60 per cent. come double and some others semi-double. The remainder are single and should be uprooted. The variety Marguerite will bloom the first year, but it does not give nearly the amount of bloom the others do.

The English Ivy

C. B. M.

OF all vines for continued house growth the English Ivy stands at the head as a universal favorite, and yet is seldom seen brought to a state of luxurious growth and vigor. It is most easy to grow, and when once well established makes rapid progress. It branches freely and gracefully, will stand dust, hot and dry air, sudden changes of temperature, and show no ill effects therefrom. One of its qualifications as a house plant is its ability to grow in the shade even better than in the sunshine. Frequent washings of the foliage make it as "good as new," rendering the dark glossy rich leaves even more attractive than ever.

Good drainage is an especial necessity for the ivy, and only enough water should be given to keep the soil moist. None other than ordinary soil is required for good success with English ivy, applying liquid fertilizer once a week or thereabouts. The foliage must be kept clean, otherwise the plant is subject to scale, requiring much

washing and scrubbing, if once attacked, to rid it of the pest.

The English ivy is about the only plant that lends itself to training round a room, and as mentioned before, it grows equally as well without sunlight as with. The color of the leaves in fact take on a deeper and richer tone if in complete shade. Aim always to keep the plant in a perfectly healthy condition. If disease attacks it, leaves will fall off before recovery sets in, and the long naked branches are anything but a "thing of beauty."

Another Blue Hydrangea

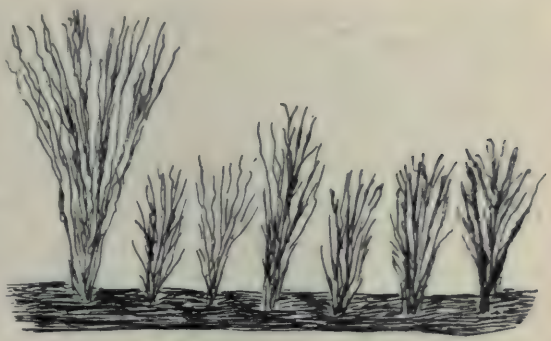
GEORGE VAIR, NORMAL SCHOOL, TORONTO.

I NOTICE by the October issue of The Horticulturist that Mr. E. Tyrrell, president of the Toronto Horticultural Society, writes about a blue hydrangea, belonging to a lady somewhere in England, which produced blue blossoms, and that the owner in question was offered the sum of 10 pounds but did not make a sale even at that sum. The plant referred to is not the only one that produced blue flowers.

I remember in my father's time (who by the way was a gardener) hearing of a similar freak which occurred in Scotland.

Of course it was a wonder, and very many ideas were put forth as to the cause. Finally the whole matter was exploded. The hydrangea was planted against a wall and through the wall there was a lead pipe. The roots of the plant wound around the pipe of lead and thus became what might be termed oxydized. The plant produced blue flowers. The lady spoken of must have possibly in some way placed some lead filings amongst the soil, hence the result. Let some one try the experiment.

Never allow plants to droop for want of water. Do not let water stand in bottom of jardinieres, as it rots the roots and the plants soon die.



Preparing Roses for Winter, No. 1.

Many amateur rose growers in Canada fail to attain success through not knowing how to properly protect their plants in winter. One of the most successful rose growers in Canada is Mr. W. G. Black, of Ottawa, who in an address on roses, delivered recently before the Ottawa Horticultural Society, gave some valuable information on this subject. The process by which he preserves his rose trees through the severest winter, is simple, inexpensive and easily applied. In the spring, his roses come out 10 feet and sometimes 20 feet long, as perfect as the day they were turned down. This cut shows a row of roses 14 feet long, in November with the leaves all off, ready for winter protection.

Growing Sweet Peas.—Seed of sweet peas should be planted at the earliest opportunity, after all fear of frost has gone. Seed planted late in fall, if in well drained soils, will give much earlier flowers than will be secured from the earliest spring plantings. Do not plant sweet peas in the same soil two years in succession, or where you have planted garden peas the previous year. The vines should be located so as to receive the sunshine at all times. If too shaded a location is selected for the sweet peas the vines will grow to an extreme length and have but few leaves and fewer flowers.—(C. B. M.

Syringe your plants often with pure water. It will add health and vigor to the plants being grown in the windows, or in a hot dry atmosphere. Sprinkling and washing the foliage in hot, dry weather is good for all plants. Pick off all dead and sickly leaves as soon as they appear. They only drain the strength of the plant and do no good.

In winter and cooler months give plants all the sunshine possible. Fresh air in mild weather is exceedingly beneficial for all plants kept indoors.

Something About Geraniums

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH, ONT.

What have you in double flowering silver leaved geraniums? Give name and color of flower. Do you consider them worth growing by the retail grower? What do you consider to be the best scarlet bedding geranium?—(A. W. F., Hensall, Ont.

The varieties of double flowering silver leaved geraniums we grow are: Wm. Languth, a very desirable variety for a pot or window plant. This variety has flowers of a dull scarlet color. We also have the silver leaved type of the well known bedding geranium, S. A. Nutt. The leaves of this variety are slightly margined with silver, otherwise it is very similar to the original type. It is a recent introduction, and we have not had time to thoroughly test it, but it seems inclined to deteriorate or go back to the plain leaved or original type; evidently it is only a sport from the original.

The pink flowering variety is in all probability "Mrs. Parker," a good variety for growing as a pot plant, and quite as easy to grow as an ordinary variety. Would not recommend carrying a very large stock of these geraniums, as the demand for them is limited. At the same time they are very effective as window plants. I consider S. A. Nutt the best crimson scarlet bedding gerauium, and J. J. Harrison for a lighter scarlet.

Before lifting plants from a box or bed to transplant, soak soil with water and lift as much earth as possible with each plant; very few will wilt. You can transplant sweet peas and poppies in this way, although some people will tell you that they cannot.—(N. S. Dunlop, Floral Agent, C. P. R.

I find pansies will give two good crops of flowers, after which it is better to replace them with young plants.—(William Spendlow, Billings Bridge, Ont.

The Peony

WILLIAM FOLEY, LINDSAY, ONT.

THE peony is cultivated in a great many gardens, and is considered very hardy. It has a great variety of colors and is sometimes highly scented. The season of flowering runs far into the summer.

Nothing looks more beautiful than a hedge or row of peonies of various colors, or a large round or oval bed. Peonies when once planted should not be disturbed for years, and only then to reduce the clumps. They respond to kindly treatment, and even when neglected, which is too often the case, die hard. There is a great variety of both double and single flowers. I would cordially recommend every one who is interested in a flower garden to make room for a few plants of the much-neglected peony.

Preparing Roses for Winter, No. 2.

In this cut, the materials required for the protection of the bushes during the winter are shown. They include three pine boards 15 feet long, about 14 inches wide with two end pieces, four small braces and a sack of dry leaves.

See plants are properly potted, not overpotted. Give them a little fertilizer occasionally, either in liquid form or dry powder on top of the earth around the plant. Secure free drainage by putting bits of crockery, stones, etc., in the bottom of the pot before filling with earth.

Turn plants in windows occasionally, say every two weeks, and they will grow straight and symmetrical. Pinch back all straggling shoots to form bushy and good shaped plants.

A Floral Exhibit That Has Brought Honor to Canada.

The magnificent floral display shown in the illustration was made at the World's Fair at St. Louis by Mr. H. H. Groff, of Simcoe, Ont., and brought great honor to Canada by winning the highest award. In the growing of gladioli Mr. Groff is recog ized as the leading specialist in America, and has won many valuable and notable prizes for his exhibits. Among these are the Gold Medal at the Pan American, the Pan American Silver Vase, besides thirteen first awards at Buffalo the same year. It was with the intention of securing certain strains that he desired that Mr. Groff took up the question of scientific hybridization. His creations have to-day been sold on every continent. From one-half to three-quarters of a million bulbs are sold every year.

A ROT OF STORED CELERY

CELERY may be dug in the fall and stored in a cellar to be used during winter and spring. It is usual to pack it closely, with the roots in soil which is kept moist. With right conditions of moisture and temperature the celery keeps well until spring, but, if the soil is wet, and the temperature varies, and, especially, if the celery freezes and thaws, it will decay.

Decay follows close upon death. The bacteria and moulds are its active agents. They are always present in the soil in which the celery grows, and in the soil in which the roots are packed, and there are no practicable means by which they can be kept away from the plant; neither can they be killed without killing the plant. It remains then to keep the celery alive and in health so that it can resist the invasion of the bacteria. A constant temperature, a little above freezing, keeps the celery alive without growing, and keeps the bacteria in check, for they also become dormant at low temperatures, and increase slowly, or not at all. If the celery freezes it becomes so much dead matter without resistance, fit food for bacteria, and, as soon as the temperature rises, the celery rots.

*A bulletin by B. Barlow, recently issued by the Ontario Agricultural College.

This was observed in some celery stored in the cellar of the horticultural department of the Ontario Agricultural College during the winter of 1903-4. The celery tops showed signs of having been frozen, but, as the temperature continued low, it remained sound within, the outer leaves and stalks only showing signs of decay. On staining the decayed tissue, bacteria were found in large numbers, and, on making plates from the inner parts of the decayed stems, many colonies developed. The plates were usually pure cultures, or almost pure cultures, of *Ps. fluorescens*, and two varieties of it were recognized.

Some fresh plants of celery were obtained and the outer leaves were cut away. The inner leaves were washed under the tap and covered with mercuric chloride solution, one part to 1,000 of water, then rinsed in sterile water and each stem put into a larger sterile test tube containing a little sterile water in the bottom. In three weeks, four out of 14 stems so prepared showed signs of rotting, but some remained sound after a month and were then inoculated with pure cultures originally isolated from the celery. Some of these stems in test tubes had been standing in the sunshine and had regained their

green color. To inoculate them a sterile platinum needle was dipped into the pure culture and thrust into the stem. After one day at room temperature the rot was sometimes evident, and, in about four days, juice from the rotting stem had accumulated in the bottom of the test tube, and the stem was softened throughout so that it could be shaken down into a soft pulp in the bottom of the test tube. Plates from such inoculated and rotted stems developed colonies of *Ps. fluorescens* in pure cultures.

While the weather continued cold the celery in the cellar remained sound, although it developed a sweet taste; but, when warm weather came in early spring, what had not been consumed, rotted.

By such study we learn that bacteria cause decay, and that decay takes place under conditions in some measures known to us and under our control. To keep celery well, it should be packed with the roots in clean soil. For this purpose it is best to use the humus, or muck soil, in which the celery is commonly grown. The soil in which the roots are packed should be kept moist, but not wet, with good water. The cellar or storage room should be kept at a uniform low temperature, a little above freezing. Free ventilation should be provided, both as a means of regulating the temperature and for the health of the plants. It should be remembered, also, that celery kept in a close, foul atmosphere becomes tainted.

GROWING LETTUCE FOR THE WINTER MARKET

THE growing of several lines of vegetables under glass is a profitable occupation for market gardeners in many leading cities. Quite a little of this work is carried on in Toronto. One of the most successful growers is Mr. J. W. Johnson, of Queen street east, who makes a specialty of raising lettuce, he having two greenhouses, one 10 x 18, and the other 10 x 70 feet.

"My method," said Mr. Johnson recently to The Horticulturist, "is to start my lettuce as soon as the cucumbers are out of the way. It is started in the greenhouse, as I prefer using the greenhouse to growing the lettuce outside under frames. They usually keep freer from the green flies than when started outside. It is difficult to destroy these insects when they once get into the greenhouse, and if the plants are brought into the greenhouse the place is often stocked up with the flies for the winter. When the plants are grown in the greenhouse it is possible to fumigate and keep the insects under control.

"I sow Grand Rapids and some varieties of Boston Market. The first is a bunch lettuce and the second a head lettuce, which I find is coming into greater demand, it being a more tender variety, and with a nice crisp white head. For a fertilizer I find barnyard manure gives better results than anything else I have ever used. Planting is started about September and continued until March or April, when cucumbers and tomatoes are started again. These latter vegetables are started about a month or six weeks before the last crop of lettuce is ready to be cut. I start cutting the Grand Rapids variety of lettuce about a month after planting, or October 1, while the head lettuce is not ready until about December 1.

"The wholesale dealers of Toronto take all the lettuce I can produce. These dealers say they have to import large quantities from the United States because they cannot get sufficient quantities here to supply the demand. The imported article is not nearly as crisp or nice as the home grown."

Do you like the changes we are making in The Horticulturist? If you do, tell your friends about them.

I am well pleased with The Horticulturist. Find it a great benefit and entertainment.—(G. E. Russell, Stamford, Ont.

GROWING ONIONS FROM SETS

R. BRODIE, WESTMOUNT, QUE.

IT is only in small family gardens that onions are grown from Dutch sets. Hundreds of acres near Montreal are grown from seed, some farmers having 12 acres each. They are generally grown on land that has been very heavily manured and planted the previous year to cabbage or cauliflower. Sow about five pounds of seed to the acre, in rows one foot apart. Cultivate often and keep the weeds down or they will soon down the onions.

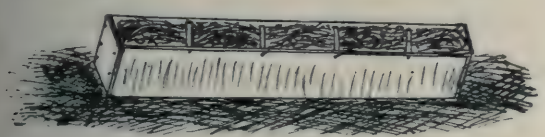
With good soil, good seed and clean cultivation, 600 bushels to the acre should be the yield. This, however, is only in case there is no onion maggot, for which as yet no practical preventive has been found. The best remedy, perhaps, is paris green and plaster of paris (gypsum), two pounds of paris green to a barrel of plaster. Sown on a row of onions where the plants are afflicted it prevents the maggot from spreading over the field.

The most profitable varieties to grow are: for the red onion, the Early and Large Red Wethersfield; the Red Globe Danvers is much liked on some soils, especially the black sandy loam. For yellow onions, the Globe Danvers and Flat Danvers are the best; the Giant Prizetaker is good for amateur growers. Start the seed in the hot beds, transplanting in May. For commercial purposes it comes into competition with the imported Spanish onion, and we can never obtain the bright straw color of the imported varieties. In white varieties the White Southport and Prize Winner can be grown, starting them in hotbeds. Avoid wet soil or the onions will grow to thick necks.

A Promising Industry

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

THE growing of vegetables for the early markets, I believe, is one of the branches of market gardening which will certainly increase very much within the next few years. From the fact that many of the



Preparing Roses for Winter, No. 3.

This illustration shows the box with the cover nailed securely on, and the bushes ready for their winter's sleep. Amateur rose growers will do well to adopt this method.

peach growers in Essex district have been forced to turn to something else since they have lost their peach orchards, this forcing of early vegetables has received a great deal of attention in the Leamington district. Some of the growers there this year have told me they have found their early crops of tomatoes, cabbage and cucumbers even more profitable than peaches. There is a growing demand for these early crops; in fact, some of the growers stated that they could not begin to meet the demand this year.

In the past we have been importing a large quantity of early vegetables from the southern states, and there is no reason whatever why we should not produce a large quantity, if not the greater part of these, in our own country. Some of the southern sections of the province, like the Niagara and Essex districts, are particularly adapted to growing such crops, as they have a suitable soil and their winters are not so severe that the expense of heating is excessive.

We are apt to judge strangers whom we meet on the street by their personal appearance. Their outward garments, if you please, convey to us almost insensibly their qualities of mind and heart.—(P. G. Keyes, Ottawa, Ont.

Express Charges on Vegetables

S. WARD KENNEDY, LEAMINGTON, ONT.

IN his remarks on tomato growing in Essex county, which appeared in the September issue of The Canadian Horticulturist, Mr. W. W. Hilborn does not, to my mind show clearly why we must have better rates to the Northwest. My shipment of vegetables was not large, but serves to show the point. The following is a copy of statement I received in regard to my consignment.

Aug.2.	By 24 Baskets Tomatoes	19.20
	To Express.....	11.00
	„ Commission.....	1.92
	„ Money Order....	6.28
		19.20 19.20

The tomatoes sold for 80 cents a basket. This I am sure is a good price, and yet the Express company received nearly double what I did. Surely this is not right.

Growing Celery in Beds

"WE get good results with celery by putting the plants in the old chrysanthemum beds," said Mr. John Whittaker, of Whittaker Bros., Cornwall, Ont., to a Horticulturist representative, who visited his place. "We sow the seed about the middle of March, and when the plants are about one inch high transplant them into flats. They are left there until about two or three inches high, then the flats are set outside to harden the plants. If frost is anticipated the flats are placed inside or covered with burlap. As soon as danger of frost is past, the plants are set outside in beds 12 feet wide. For the early market, plants are set nine inches apart each way, but for the later crop the space is increased to 12 or 14 inches. When planted in this way a wheel hoe can be used. By running the hoe both ways very little hand weeding is necessary. When large enough for use, board in all round with a 12-inch board. The centre, of course, bleaches itself, however if it does not bleach quickly enough, cover the bed with burlap. The advantage of growing celery in this way lies in the fact that the bleaching is more easily done than when celery is grown in trenches, besides which, three or four times as much can be grown on the same amount of ground. The ground of course, must necessarily be well manured and watered frequently to ensure good growth. White Plume and Paris Golden Yellow are the only varieties I grow, and of these I prefer the latter."

The Culture of Potatoes

NO vegetable is raised as extensively as the potato. To the householder, who cultivates a few hills in his own garden, and the large grower, who raises many acres, the crop is an important and profitable one.

A bulletin, devoted exclusively to the culture of potatoes, has recently been issued by Prof. F. Wm. Rane and H. F. Hall, of

Preparing Roses for Winter, No. 4.

The rose bushes bent down and fastened with braces are here shown. The box is then filled with the dry leaves after which the bushes are ready for the winter.

the Northwest Agricultural Experiment Station. According to the bulletin the ideal potato soil is deep, friable, retentive of moisture, and well drained. Heavy clay and very light sandy soils should be avoided. Stony land renders planting and cultivating difficult and expensive.

The presence of decaying organic matter in the soil not only furnishes valuable plant food but also increases its water-holding capacity. Everything else being equal, a northern slope would be preferred to a southern one, except when grown for early

use, as the crop is sometimes badly injured by the intense heat increased by a southern exposure during a hot, dry season.

GUARD AGAINST DISEASES.

Fresh stable manure, especially when harrowed in, tends to produce such diseases as scab, blight, and rot, and should therefore be applied, if possible, to the crop preceding, and enough used to provide for the needs of both crops. The potato thrives best in a cool, moist soil, and, unlike the corn crop, roots quite deeply. It is therefore recommended that stable manure be plowed in for the above-mentioned reasons, and also to prevent the germination of the weed seeds contained in it, thus greatly reducing the cost of hand cultivation.

Cultivation is a very important operation, and must be attended to at the proper time if the crop is to be kept clean and thrifty at a minimum cost. The neglect of a few days in one cultivation may mean the difference between profit and loss. Cultivation should begin by stirring the soil with a weeder or smoothing harrow within one week from time of planting, and the operation repeated every week or ten days as long as the size of plants will admit, the objects sought being to prevent crusting of the surface soil and the extermination of weeds before they have gained foothold in the soil.

An Instructive Bulletin.—Some Bacterial Diseases of Plants, is the name of the bulletin, No. 136, recently issued by Prof. H. C. Harrison and B. Barlow, bacteriologists, of the Agricultural College at Guelph. The subjects treated include Fire blight or twig blight, Soft rot of cauliflowers, fall turnip, etc., by Prof. Harrison, and Bacteriosis of beans, and A rot of celery, by Mr. Barlow. The bulletin is well illustrated, describes the various diseases, and the causes and remedies, as far as they have been discovered to date.

Storing Celery

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

A GOOD method of storing a few dozen heads of celery is to place it in boxes. The boxes should be about 15 to 18 inches in depth, and of a size convenient to be moved around with comparative ease. The box should be deep enough so that the tops of the celery are at most only an inch or two above the top edge of the box.

When filling the box with celery first take out one side of the box. Then place the box on a bench or on the ground with the other side of the box, that has not been removed, downward. Start packing the celery with the roots toward the bottom of the box. If there is very little earth attached to the roots place some earth over each layer of roots, and if the soil is very dry give the soil, not the tops, a slight sprinkle of water. Fill up the box with successive layers of celery until the box is quite full. Then place the side of the box that had been removed on again and nail it down before the box is moved from its position. The box can then be raised to an upright position. Some soil may be required around the box if the plants are not packed fairly firm. Celery packed in this way can be placed in any part of the cellar. Packed in boxes in this way there is less danger of over-heating than if packed early in the season in a warm cellar. No lid is required for the box.

Another advantage in this method for the amateur gardener is that the celery can be kept safely out of doors until real winter weather sets in, if only a few leaves or some straw be placed over it on frosty nights. A few boards should also be placed over the boxes to keep out snow or rain. By packing celery in this way, it can often be kept out of doors under temporary protection until severe weather sets in, avoiding the necessity of taking it into the cellar too early.

The Canadian Horticulturist

The Leading Horticultural Magazine in the Dominion.

1. The Canad an Horticulturist is published the first of each month.

2. Subscript on Price $1.00 per year, strictly in advance, entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report and a share of its annual distribution of plants and trees. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy receiped up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

IMPORTANT IT SHALL BE A SUCCESS.

Fruit growers, florists and apiarists may, with good reason, unite in a sincere wish that the first provincial fruit, flower and honey show, to be held in Toronto this month, proves a great success. Its success will mean much to all concerned. If the issue of their first exhibition proves happy it will be the greatest advertisement the fruit, floral and honey interests of the province have ever received, and should result in a marked increase in the consumption of all three products.

These three allied industries have long been considered, by the general public, as of but relatively small importance, and an annual, large, provincial exhibition of this kind is all that is required to demonstrate the contrary. Let the first exhibition prove a success and the holding of annual exhibitions on an even more extensive scale is assured. The energetic and enthusiastic manner in which the preparations for the exhibition have been undertaken by the members of the various organizations interested reflects credit on the members and makes a crowning success of their efforts seem probable. All that now remains is for all who are interested in either fruit, flowers or honey to attend and make success certain.

A WISE MOVE.

The railway commission has given additional proof of its value and of its determination to see justice done all parties by the appointment of the special committee to investigate conditions surrounding the handling of fruit both in Canada and the United States. At the sessions of the commission in Toronto, when the evidence of the fruit growers and companies was taken, considerable was said on both sides concerning the methods adopted in the United States in regard to the handling of fruit. Definite and necessary information was lacking. The appointment of this committee should result in this information being secured.

Another matter for gratification is the character of the committee. It is to be presumed the railway companies are satisfied with their representatives; certainly, fruit growers have no reason to regret the selection of Mr. W. H. Bunting to watch their interests. The arduous work already performed by Mr. Bunting and his thorough mastery of the situation make him especially well fitted for a position on the committee. If any direct pleasure or benefit can be derived by Mr. Bunting, as a result of this trip, it is to be hoped he will be able to enjoy them to the full.

An encouraging point connected with the appointment of the committee is the inference that is to be drawn that the material concessions already made by the railway companies are only precursors to more important ones still to follow. So far fruit growers have nothing to regret in regard to the work of the railway commission, and much for which to be thankful.

IT IS TIME TO COOPERATE.

The thousands of barrels of apples that are this fall going to waste and the low prices prevailing should be an object lesson to our Canadian fruit growers. There can be little doubt but that there will be a marked improvement, in the course of a few weeks, in the prices paid for winter apples. Were our Canadian growers able to store their best fruit until such time as the markets improve it would mean thousands of dollars to them. The trouble is, few of our growers are in a position to do so.

Cooperation by fruit growers is not a "cure all" for the various troubles our fruit industry suffers from. It will not materially advance prices in a dull season or improve the quality of the fruit in the growers' hands. Cooperation will, however, accomplish much, very much. By means of a central packing and storage house it makes it possible for small growers to have their fruit properly graded without the expense and annoyance of boarding the packers' gangs. Small growers would also be able to hold their best fruit until such times as the market was ready for its consumption instead of being forced to see it rot beneath the trees.

Cooperation would enable growers to deal direct with the large firms handling fruit and thus save the expense now incurred through dealing with small local buyers. Thousands of western grain growers, who have been all through this mill, have already conquered the situation by erecting their own elevators. It is time for our fruit growers to make a move.

BOTH ADVERTISER AND BUYER PLEASED.

For several months The Horticulturist has offered to give ten dollars to the reader buying goods to the greatest value from advertisers in each issue provided it was stated the advertisement was seen in The Horticulturist. The prize for September has been won by Charles Mackey, of Thornbury, who purchased goods to the value of one hundred and seventy-five dollars and eighty-four cents from the Waggoner Ladder Co. While other readers may have bought goods of greater value from advertisers in the same issue, Mr. Mackey wins the ten dollars, as no other reader, whose purchases exceed his, has applied for the prize. One other reader purchased goods to the value of eighty-seven dollars from the Canadian Portable Fence Co. as a result of that firm's advertisement in The Horticulturist. And so it goes.

The result of Mr. Mackey's having informed the Waggoner Ladder Co. that he saw their advertisement in The Horticulturist is that he received the prize of ten dollars and is pleased; the Waggoner Ladder Co. have found that it pays to advertise in The Horticulturist and is pleased, while The Horticulturist is pleased because The Waggoner Ladder Co. has renewed its advertisement in this issue for the back outside cover page, and intends shortly to sign for a time contract. It will thus be seen that there is no "fly in the honey," because we are all pleased. Remember, any reader purchasing goods from our advertisers is entitled to a handsome calendar whether they win the special ten dollar prize or not.

When the Agricultural and Arts Act is changed and horticultural societies are placed on a footing of their own, as distinct from agricultural societies, several matters of vital importance will call for careful consideration. One of, if not the most important, will be the basis on which horticultural societies shall receive their grants. Shall the grants be made on a membership plan; according to the amounts societies give for horticultural purposes, or a combination of these principles? Should societies be required to hold a certain number of meetings yearly, distribute seeds, etc? These are subjects that will have to be considered at the horticultural convention this month in connection with the fruit, flower and honey show. Delegates should prepare themselves to discuss these matters intelligently and be in a position to make suggestions.

Field mice are reported to be unusually numerous in different parts of Ontario this season. They are already very noticeable in cover crops and along grassy fences. Orchardists should be on their guard and use every precaution to prevent the destruction of fruit and shade trees by this pest, which did so much damage last winter. There are various methods of protection, such as banding the tree trunks, using specially prepared paints, etc., which should be given due consideration by readers of The Horticulturist.

Canadians who are proud of Canada's horticultural resources should read the description in this issue of the nurseries of Messrs. Morris & Wellington, of Fonthill. There are few firms of any kind in the Dominion which do a larger business; none that demand a greater mastery of infinite detail. The steady and marked growth of this immense business has not been of the hothouse variety. This speaks well for its operations in the past and its prospects for further development. Such an established business adds to the stability of the horticultural interests of the country.

What can be done with such a man as the one mentioned in this issue, by Mr. E. Morris, of Fonthill, who, when his farm was underdrained at no expense to him, thought so little of the improvement as to not even take the trouble to keep the outlets clear? Such a man is probably anxious for an opportunity to talk your head off about hard times.

How Export Fruit Should Be Packed

JAMES LINDSAY & SON, EDINBURGH, SCOTLAND.

Our opinion is that if Canadian shippers continue to pack in a straightforward manner there will be an increased demand for the article they put up. With regard to improvements, it ought to be seriously impressed on them that they must use strong packages. Some Canadian shippers hold the opinion that any sort of package will do, but such is not the case. Barrels ought to have eight hoops, and the staves ought to be of thoroughly dried wood and the liners better driven home than they usually are.

We find that at one of the ends the liners are fixed by the coopers, and that fixing is very inadequate for what is required. Many times they are nailed to the covers, not to the staves at all, and of course the consequences are, on arrival here, the heads or bottoms are out. Shippers should not send inferior grades of fruit, as the packages of such grading incur the same expense as fine quality to handle, and it is discouraging to the business all over.

The Department of Agriculture's inspector in Glasgow writes to W. W. Moore, head of the extension of markets division, condemning the shipments of Canadian apples to Glasgow via New York as less satisfactory than from Montreal. The distance from the fruit centres to New York is much greater than to Montreal, and the steamships sailing from the former port are not well ventilated.

The freight from New York to Glasgow is 12 cents cheaper than from Montreal to Glasgow, which sum shippers by New York think they save. Actually, however, there is a net loss of 36 cents on every barrel going by the New York route. Owing to the state in which the fruit arrives from New York, some British importers have cabled Canadian shippers not to ship that way, but to send by the Donaldson or Allan lines from Montreal. (Note—Advertisements giving sailings by these lines are published in this issue.)

CARS SUITABLE FOR CARRYING FRUIT

The Railway Commission at Ottawa has recently arranged to send James Hardwell, its chief traffic officer; W. H. Bunting, president of the Ontario Fruit Growers' Association; J. M. Riddell, freight agent of the Grand Trunk Railway, Montreal; and a representative of the Canadian Pacific Railway, not yet selected, to examine what are considered the best cars now used for the transportation of fruit in Canada and the United States. These gentlemen have been instructed to make a thorough inspection of such cars, gather all the facts available, and report at an early date what they believe to be the best car, considering three points; first, suitability for carrying fruit in warm or hot weather; second, adaptability for the carriage of other kinds of freight, when not required for the transportation of fruit; and, third, what is likely to be the cost of the special kind of car which they may recommend.

As chief traffic officer of the Board, Mr. Hardwell has special and varied qualifications for work of this kind; Mr. Bunting thoroughly understands what is required by the fruit growers of the country, and Mr. Riddell has had long experience as a local agent of the Grand Trunk Railway in Montreal, and has therefore had an opportunity of noticing the merits and demerits of the different kinds of cars used for the carriage of fruit and vegetables.

WHAT THE COMMITTEE WILL DO.

It is proposed not only to inspect the best cars now in use in the Dominion, but to go to New York and Jersey City, as it is thought that in these places the committee will have an opportunity of seeing a variety of the best cars used for fruit transportation throughout the republic.

The special object is to find a car that may be used as a ventilated car during the short fruit season, and at other times as an ordinary freight car adapted for the carriage of other commodities, and thereby relieve the railways of the expense of providing and maintaining special ventilated cars, which, owing to their non-adaptability for other purposes, remain idle during the greater part of the year.

It is sincerely hoped that the result of the investigation may be the selection of a car that will remove the many difficulties incident to the transportation of fruit under the conditions which at present exist.

THE CONCESSIONS MADE BY THE RAILWAY COMPANIES

As a result of the evidence given last summer by representatives of the fruit growers before the Railway Commission, when it met in Toronto, the following concessions to shippers have already been approved by the commissioners. These concessions have been voluntarily proposed by the railway companies. It is expected further concessions will be made later.

The changes are :

(a) That under the heading of "Fruits," the Canadian freight classification be amended by reducing pears (green), in boxes or barrels, from first-class to third-class in less than carloads, and from third to fifth class in carloads; also that apples (green), in boxes, which are at present second-class in less than carloads nd fifth-class in carloads, be made third-class in less than carloads and fifth-class in carloads, thus making the classification of apples and pears in boxes or barrels uniform.

(b) That fruit described in the current Canadian freight classification as "fruit, fresh," be carried in baskets, boxes or crates, viz : Between all stations in Ontario, east of Sault Ste. Marie and Fort William, and between all stations in Quebec, and interprovincially between Ontario and Quebec, also from stations in Ontario and Quebec to stations in New Brunswick and Nova Scotia, at fourth-class rates in carloads of not less than 20,000 pounds, instead of third-class, as at present, and at second-class rates in less than carloads of 10,000 pounds or over, instead of first-class, as at present. Also from stations in Ontario and Quebec to Winnipeg, Portage la Prairie and Brandon, at fourth-class rates, in carloads of not less than 20,000 pounds, instead of at third-class, as at present.

It is understood in all cases that the total charges on a smaller lot shall not be greater than the total charges on a larger lot at the next lower rate, as indicated above.

(c) With respect to the charge made by the railways for refrigerating shipments in transit, it is ordered that the average actual cost of the ice and the placing thereof in the cars shall not be exceeded, and that, pending a decision by the board as to a reasonable charge for such service, the charge for refrigeration shall not be more than $2.50 per ton of 2,000 pounds on the actual weight of the ice supplied.

Shipping Fruit.—In shipping our fruit we must have a commission market for our surplus. When shipping on order, we can never tell just how fast the fruit is going to ripen. One day a large amount may be ready for market, while the next day there will be a shortage. If we ship more goods than the order calls for the buyer sometimes cuts the price. If buyers would order less frequently and give larger orders it would be possible for shippers to obtain lower transportation rates and make quicker shipments.—(Robert Thompson, St. Catharines, Ont.

No Opening for Ontario Fruit.—I do not think Ontario fruit can be sold in British Columbia at all. Transportation is against it, and besides there is a large quantity of fruit raised here. Some fruit is imported from the states of Washington, Oregon and California, while Australia sends some too.—(H. Atkinson, Summerland, B. C.

Lack of knowledge how to care for orchards, scarcity of labor, no organized system of packing and selling, and distance from station are all against us in attaining success in fruit growing.—(S. J. Hughson, Durham Co., Ont.

FRUIT INTERESTS NOT YET SATISFIED

Two of the leading witnesses, Messrs. H. W. Dawson, of Toronto, and R. J. Graham, of Belleville, who gave evidence on behalf of the Ontario Fruit Growers' Association at the sessions of the Railway Commission in Toronto, last summer, are not entirely satisfied with the concessions made by the railroads, as published in this issue. Their views, as expressed to The Horticulturist, are as follows :

Mr. Graham says : "The concessions are of no great importance except to shippers of small fruits. The apple trade will be helped in no way by the arrangement, except in less than car lots, which amount to nothing. For instance, I have orders to fill for 10,300 barrels of apples, all in car lots, not an order for anything else. Better cars, despatch cars when ordered, and proper receipt are worth ten times the concessions granted."

The views of Mr. Dawson are as follows : "Regarding the concessions on fruit shipments, they no doubt will result in good to fruit shippers, but they are not sufficient in consideration of the service fruit generally gets. True, the railroads are improving, but their service is not what it should be yet. We notice sometimes that railroads will try and give special service from one point to another, and keep it up for a while, but they seem to tire of it in a short time. While they are giving the special service not much fault can be found, but the trouble is they do not consider the handling of fruit of sufficient importance to give it the good despatch it really deserves. We can get fruit from the United States with much better despatch than we can from our own country. In getting fruits from California, the despatch is much better than from Chicago, St. Louis, or the southern states. I am of the opinion that if any special grievances we may have be kept before the attention of the commission, it will do much to remedy the evils."

A SUCCESSFUL EXHIBITION EXPECTED

Final arrangements for the Provincial Fruit, Flower and Honey Show have been completed, and everything indicates the exhibition will be a great success. The exhibits of fruit, flowers and honey promise to be very large. Never before have as many flowers been raised in Toronto and vicinity for an exhibition as this year. Most of these will be shown, in addition to which numerous entries have been received from outside points, including centers as far west as Chicago.

In the fruit building demonstrations will be given in fruit packing by experts from the Dominion Fruit Division, in addition to which there will be working demonstrations by members of the Ontario Women's Institute staff, under the direction of Supt. G. A. Putnam. A most interesting feature will be the special exhibits of fruit that will be made by the provincial fruit experiment stations. These will be arranged by the secretary of the stations, Mr. Linus Woolverton. There will also be a special exhibit of fruit from the various provinces of Canada. One of the most valuable features will be numerous exhibits of orchard implements, spraying machinery, etc. Most of this machinery will be operated for the benefit of sightseers. All the exhibits of fruit will contain cards describing their qualities fully. The honey exhibit will be made in this building and will be a large one.

WILL BE FORMALLY OPENED.

The formal opening will take place Tuesday afternoon, November 15, when His Honor Lieut.-Governor and Mrs. Mortimer Clark will visit and open the exhibition. The same afternoon the horticultural convention will open in the members' reception room at the Parliament Buildings. The bee keepers will commence their convention in one of the large rooms at the rink.

A mass meeting, open to the general public, has been arranged for Tuesday evening in the Y. M. C. A. hall, at which Hon. John Dryden, Minister of Agriculture, will preside and speak. Other speakers will be Messrs. G. H. Powell, Washington, U. S. A.; C. C. James, Deputy Minister of Agriculture, and Dr. James Fletcher, of the Central Experimental Farm, Ottawa. On Wednesday fruit will be given away free to all who attend the exhibition. The horticultural convention (the program for which was published in the October issue of The Horticulturist) will be continued all day, and also the bee keepers' convention. In the evening the directors of the Ontario Fruit Growers' Association will hold a business meeting.

Thursday, thanksgiving day, the fruit growers will open their convention at the Parliament buildings, when the president will present his annual address, committees will report, etc. In the afternoon the speakers and subjects will be : Cold Storage, G. H. Powell, Washington, U. S. A.; Fruit Shipments to Winnipeg, Prof. Reynolds, of Guelph; Conditions Surrounding the Canned Fruit Industry, by R. J. Graham, of Belleville, Ont., W. P. Gamble, of Guelph, and others.

The program for Friday includes a free distribution of flowers by the florists. At the fruit growers' convention in the morning the nominating committees will report. Prof. Lochhead, of Guelph, and W. T. Macoun, of Ottawa, will speak on Fungous Diseases of the Grape; Prof. R. Harcourt, of Guelph, and Provincial San Jose Scale Inspector J. Fred. Smith, of Glanford, will describe the Latest Results of Spraying for San Jose Scale, and Mr. Alex. McNeill, Chief of the Fruit Division, will speak on Dominion Power Spraying Demonstrations. At their Friday afternoon session, which will close their meeting, the fruit growers will discuss methods of cooperation, when speeches will be made by Messrs. A. E. Sherrington, of Walkerton; Elmer Lick, of Oshawa; Robert Thompson, of St. Catharines, and others.

NOTES.

The exhibition will be held in the Granite Rinks on Church street, from November 15 to 19, and will be open from 9.30 a. m. until 10 p.

m. Church street cars pass the doors.

General admission 25 cents, children 10 cents. Members of the organizations interested in the exhibition will receive membership tickets for 50 cents, good for entrance at any time. Six coupon tickets may be bought for one dollar up to November 14.

The rinks will be beautifully decorated and an orchestra will be in attendance three afternoons and every evening.

The conventions will be open to the public.

Everything possible will be done to make the various features of as great educational value as possible.

People attending from points outside the city, when buying their railway tickets, should ask for certificates which, on being presented to the secretary at the show, will entitle them to free passage home.

Let every fruit grower and florist attend and a successful exhibition will be assured.

Active Horticultural Work in Guelph

The Guelph Horticultural society is doing good work. We had excellent meetings in March, April and May this year, and had good programs for our meetings in September and October. At our September meeting Mr. R. B. Whyte, of Ottawa, gave us an address on "Autumn Planted Bulbs for Spring Flowering," which was of interest to the members, who receive from the society a collection of bulbs for fall planting.

In the spring a collection of Semple's Branching Aster seeds was distributed to about 500 of the city school children, and accompanying it was given an excellent little bulletin giving full directions for the cultivation of the plants, and stating rules governing the flower competition, which was held in the Central school recently. The children made a grand display of flowers of their own growing, which were carefully judged and prizes awarded for those who were most successful. The city teachers have taken a great deal of interest in this work, and have ably backed up the efforts of the horticultural society. In this way we hope to encourage a love for flowers among the children, and trust it will spread to the older people and have its effect in beautifying the gardens and grounds of the city generally.

Seaforth Has A Large Membership

The membership of the Seaforth Horticultural society is 111, which is considered pretty good for our town. A number of the members live in the surrounding country.

Not many meetings have been held this year, but in the spring a very interesting lecture was given by Mr. T. H. Race, of Mitchell, on the "Purposes of Horticultural Societies." During the summer there were two other lectures, one by our president, William Hartry, on the "Cultivation of Tuberous Begonias"; the other took the form of an open air meeting on the president's lawn. Numerous boquets of the flowers in season were brought by members, who had the privilege of viewing Mr. Hartry's garden; also a very fine collection of tuberous begonias. A small vase of seedling dahlias, grown by Mr. Langstrath, was shown, and an address on the treatment of dahlias was given by Mr. Robert Scott. These feelings were all well attended.

Our surplus funds have been used to give premiums to the members. The premiums given by the Fruit Growers' Association, viz: gladioli bulbs and Dorothy Perkins roses, were very much appreciated and gave very general satisfaction.—(Wm. Elliott, Sec'y.

WALTER T. ROSS.

Ever since its organization in 1896, Mr. Walter T. Ross, collector of customs at Picton, Ont., has been secretary-treasurer of the Picton Horticultural Society. The membership of this society is usually between 75 and 100 Distributions are made each spring and fall to the members of plants, bulbs and seeds The annual lecture given before the society each spring, through the generosity of the government, is always looked forward to with interest. Most of Mr. Ross' attention has been given to the growing of tropical plants and fruits. He has had remarkable success, as although he has no greenhouse, he has produced fine oranges, lemons, figs, etc., as well as gardenia, jessamines, etc. His trees are now maturing oranges, lemons, figs and guavas; and the more practical articles, such as ter and coffee are doing nicely.

More Enthusiasm Desired

With the exception of a lecture by Prof. H. L. Hutt last spring there have been no public discussions during the past few months by the Thornbury Horticultural society. The decrease of interest in horticulture is doubtless partly due to the fact that fruit growing is not nearly as profitable as formerly. Premiums, consisting of apple trees, grape vines and flowering bulbs have been distributed as usual to subscribers. This is a feature of the work highly appreciated. Most subscribers prefer bulbs.—(A. W. Walker, Sec'y.

Two Challenge Cups.—The Toronto Gardeners' and Florists' Association, through its secretary, Mr. E. F. Collins, has sent notice to Mr. H. B. Cowan, the secretary of the combined fruit, flower and honey show, to be held in Toronto this month, that it offers for competition two challenge cups in the same classes which they were won in before by the present holders, namely class 1, section 9, and class 2, section 26, of the prize list, which was published in The Horticulturist recently. These cups must be won three times, not necessarily in succession, before becoming the property of the winner. The cups are valued at about $35 each.

The Meetings are Interesting

Members of the Grimsby Horictultural Society have had some rare treats in the way of flower and fruit exhibits in connection with their literary and musical entertainments given during the past year. The last meeting was held at the residence of Dr. Clark, who is an enthusiast in floriculture. The display of gladiolus and dahlias was a most gorgeous one. A most interesting and pleasing musical program was presented at this meeting.

The next meeting will be held at the home of the president of the society, Mr. Adam Rutherford. On this occasion Dr. Montague will be present and deliver an address. It is expected a fine flower show will also be a feature of this meeting.—(J. W. Brennan, Sec'y.

Good Work Done

The Deseronto Horticultural society has appointed its president as a delegate to the meeting of the horticultural societies of the province, to be held this month in Toronto. Other delegates from this society will also undoubtedly be present.

If other towns have improved their grounds and lawns as much as those in Deseronto, since the organization of the horticultural society, it has been money well expended, and their appropriation should be increased. The fall distribution of bulbs has taken place, each of our members receiving four Dutch hyacinths, three Roman hyacinths, and three Von Sion hyacinths. —(R. W. Lloyd, Sec'y.

A Successful Fall Exhibition

The annual exhibition of the Orillia Horticultural society was held late in September in conjunction with the fall show of the East Simcoe Agricultural society. A large space was devoted to flowers. The display of cut flowers was perhaps the finest in our experience of 17 years. The large fruit table, although well filled, was lacking in the usual quantity of winter apples, but of summer and fall apples there was a very fine exhibit, the fruit being sound and well colored. Pears and plums were practically none, most of these trees having been either entirely killed or badly damaged by the severity of last winter. There were some handsome bunches of grapes shown, and a great crop of all garden vegetables. The display of these attracted much attention.

A Large Pottery Firm.—The attention of our readers is called to the advertisement of J. Davis & Sons' Potteries, which appears in this issue for the first time. Besides being the oldest pottery firm in the Dominion, having started business in 1842, they are also the largest manufacturers of rose jars, flower pots and fancy pottery. The proprietor, Mr. J. S. Davis, reports having recently shipped large quantities of rose jars, etc., to the United States. They also make all kinds of dairy ware. The rose jars and flower pots to be used in the Provincial Fruit, Flower and Honey Show are of this firm's manufacture.

R. W. RENNIE.

The London Horticultural Society has been fortunate in having for its secretary and treasurer, since its incorporation, Mr. R. W. Rennie, of London. Horticultural matters have interested Mr. Rennie for about 20 years. As an amateur he has for several years made a specialty of gladioli and sweet peas. Of late years he has been endeavoring to advance the interests of the hardy garden. Besides his connection with the horticultural society, Mr. Rennie is also a director of the Entomolcgical Society of Ontario, as well as of the London Civic Improvement Society. As a judge in the lawn and garden competitions held in London, Mr. Rennie has served well and efficiently since their inception.

More Delegates Appointed.—The Oakville Horticultural society has appointed Messrs. James Waldbrook, John Cavers and E. A. Morden, of Oakville, as delegates to the horticultural convention, to be held in Toronto this month. The delegates from the Hespeler society will be Mr. L. Rife and the secretary, Mr. E. Gurney. From the Belleville society the delegates will probably be Messrs. W. C. Reid, S. J. Wedden, and the secretary, W. Jeffers Diamond. A large proportion of the societies have appointed delegates.

An Example for Some Other Societies

During the past year 235 packages of flower seeds, consisting of asters, nasturtiufs, phlox, zinnias, etc., have been distributed to the members of the Stirling Horticultural society. Each member also received three pounds of sweet pea seed, eight pounds of vegetable seeds, and there were 880 bulbs distributed throughout the society.

The society has planted 50 elm and maple trees in Victoria park, fully two-thirds of which are living and growing nicely. The fall distribution of bulbs has taken place, and it is expected next spring to further improve the park, which the officers have materially beautified by their efforts. The grounds of both public and high school have been decorated with many shrubs, all of which are doing well.—(G. G. Thrasher, Sec'y.

Bulbs Sought After.—The members of the Picton Horticultural society have received their fall distribution of bulbs, which have recently arrived from Holland. They consisted of 23 narcissus and 7 hyacinth bulbs for each member. Members of this society are doing good work in horticultural lines, and the bulbs were eagerly appropriated upon their arrival.—(W. T. Ross, Sec'y.

I hope the Ontario Fruit Growers' Association may continue to grow larger and the circulation of The Canadian Horticulturist to increase tenfold, as it has had and is doing a grand, noble work.—(Benj. Crawford, Bellside Creek, N. B.

A Dangerous Practice

ADOLPHUS PETTIT, GRIMSBY.

From statements I have heard made, I understand that many of our great Ontario growers have been in the habit of shipping their inferior fruit to the Winnipeg market. This is most unfortunate, for as long as it continues, our fruit will never be able to supplant American fruit at that point.

Would it not be well for our fruit inspectors to watch this trade very carefully ? A few convictions against growers who carry on this practice would result in much good and improve the western buyers' opinion of our Ontario fruit.

Shipping Immature Fruit Condemned

A Montreal fruit inspector says : In examining the fruit being shipped to the Old Country from Montreal, I notice a large number of barrels of Stark and Ben Davis apples and other late winter varieties. I do not think there is as much excuse for shipping Stark or Ben Davis in October as there is for shipping Northern Spy in August; and the practice should be recognized as distinctly detrimental to the fruit trade.

These apples will not be fit for consumption for three months, and yet if shipped now they go direct to the consumers, who will find them scarcely more palatable than a Swede turnip. When the question of shipping immature fruit is being discussed, it should not be forgotten that to ship late winter varieties as early as this is quite as reprehensible as shipping fall varieties in August or September.

A Useful Machine for Grading Apples

While visiting at the home of Mr. A. H. Pettit, of Grimsby, recently, a representative of The Horticulturist was shown a machine for grading apples. Grading is a matter to which Mr. Pettit has given considerable attention for a number of years. In this connection, he has invented several machines, including the one he is now using, which he considers is about perfect.

The apples are poured onto a rubber sheet. In the sheet there are holes, the smaller ones being 2¼ inches in diameter, for the small stuff. These are followed by holes 2¾ inches in diameter. Larger apples roll off the end of the sheet. The apples as they are forced over the sheet drop through the holes according to their size and thus are graded very evenly. Holes of as many different sizes as are desired may be added.

Underneath the sheet are rollers, which, by means of a crank, are operated in such a way as to keep the apples rolling easily down the sheet. The whole implement has been made in such a way that the apples are not bruised in any way. Its simplicity is its best feature. By means of its use it is easily possible to grade a barrel of apples every four minutes. This machine has been in use by Mr. Pettit for three years, until he has come to consider it a necessity.

MR. WM. WILSON.

In its August issue The Horticulturist published an interesting article by Mr. William Wilson, of London, whose likeness is here shown, describing a very adaptable package for fruit, which is his own invention. This package is now recognized as one of the very best on the market and has been used by the Canadian government for its exhibits of fruits at foreign exhibitions. Born in Ayrshire, Scotland, in 1849, Mr. Wilson lived in Scotland and Ireland until 1877, when he came to Canada and finally settled in London in 1879. It was while on a visit to Britain in 1894 that he first conceived the idea of inventing a complete egg and fruit case. The thought originated in the great market in Covent Garden, London, while watching a man trying to auction some really first-class fruit to a very stiff audience. In 1897 he developed an egg and fruit package, which has since been improved in many ways, until it is now one of the best known in the world.

Scotch Buyer Expects Prices Will Improve

The following interesting letter, dealing with market prospects, was received recently by The Horticulturist from Messrs. Clark and Sinclair, fruit merchants, of 9 and 11 West Dock street, Dundee, Scotland, whose advertisement appears in this issue of The Horticulturist for the first time:

"Fall apples have been doing very badly over here, but this was expected in face of the heavy crop both in England and on the continent. We have had about 1,000 barrels and results have been anything but satisfactory. We, however, expect a firming up of prices very soon. Harder varieties arriving show an upward tendency. We shall be very pleased if you can put us in touch with some reliable growers and shippers.

"Last year we handled about 6,000 barrels, and imported the bulk of them direct, but sometimes the dealers acted very unfairly with us. We could handle 500 to 1,000 XXX Baldwins and some of Spys, if reliable, finest fruit.

"The market reports contained in the September Horticulturist were very useful."

What Fruit Growers are Saying

A great drawback to planting apple orchards is the inability to get good stock to plant. Nurserymen supply you with anything but the kind you order, mostly fall varieties, which come into bearing at the wrong time and are worthless on the market.—(Thos. O'Brien, Durham Co., Ont.

The slipshod methods of buyers who buy the farmer's fruit and then send a lot of boys to pack it disgust many growers. There is little encouragement for farmers to grow fruit. When there is a good crop the price is so low it does not even pay for the labor.—(Amos Cutler, Middlesex Co., Ont.

Farmers think it will not pay to spray simply because they have been taken in so many times by men who go about spraying and who do the work improperly. The man who is spraying looks out for his own pocket.—(Anson Crosby, York Co., Ont.

A FRUIT BUYER QUIETLY GOES FOR THE HORTICULTURIST

The following letter has been received by The Horticulturist and speaks for itself:

Warksworth, Oct. 10, 1904.

I am a grower as well as shipper, and agree with your report in The Horticulturist that growers should receive more than offered for their fruit. They also should have better returns for their cheese. Would you, Mr. Editor, undertake to go on the cheese boards and pay more than the buyers are offering? No, for the simple reason that the consumptive markets for the above products are not in a prosperous condition.

I am paying 50 cents for fall apples and 75 cents for winters. I have returns for one car of Colverts which sold in Montreal for $1.15 per barrel. They cost me: barrels 43c., packing 25c., freight 45c., fruit 50c., selling 15c., or a total of $1.78 a barrel. Do you see any profit, or can you point out unnecessary expense in the cost. Twenty-five cents looks high for packing, but you must remember we can only get 10 to 15 barrels in each orchard, with perhaps three trees of the above fruit located all over the orchard.

Our winters will cost nearly as much to pack, as the weather has been very bad thus far for packing. I see very little encouragement for profits on winter stock. Farmers should receive more, but financial conditions will not warrant more. Just look at the cost: barrels 45c., packing for export 25c., export freight $1.25, buying and expense of shipping, nails 10c., cost of freight 75c., total $2.80.

Come now, Mr. Horticulturist, kindly give us a market, through your paper, that will give us cost. Your article has done immense injury, because it was misunderstood.

Yours truly,

W. J. BAKER.

In answer to the above letter The Horticulturist would like to draw attention to a number of the points made by Mr. Baker. The price he has paid for fall apples, viz., 50 cents per barrel, is reasonable in view of the excess this year of fall fruit, which is perishable and needs to be shipped immediately. The price paid for winter apples, viz., 75 cents per barrel for XXX stock, while better than is being paid in some sections, is not as high as growers have a right to expect. Good winter stock that will keep sound for shipment in January or February will meet a market practically as bare of fruit as last year, there being no surplus of winter stock reported this season. It is therefore fair to conclude that the demand will be about what it was last year, and prices the same. The usual price last year was $1 per barrel for XXX stock, and it would seem as if the same should be paid this fall.

The prices realized by Mr. Baker for soft fall stock like the Colvert on a local Canadian market, such as Montreal, should not be used when making a reference to the prices of winter stock. The estimate of cost to the dealer, given by Mr. Baker, is not excessive, but such cost should not be based on anything but the best winter stock. It is quite possible that $1 per barrel for winter stock would be a better bargain for the buyer than fall stock at 25 cents per barrel. The statement that 25 cents is allowed for packing, owing to the small number of barrels that can be secured in the average orchard, is undoubtedly well founded, and emphasizes what has often been stated in The Horticulturist that small growers should unite in cooperative associations to save this expense by delivering their apples in central packing houses.

Most of the items of expense given in connection with the shipment of fruit to Great Britain are somewhat higher than many careful buyers have been paying this year. Thousands of barrels have been bought for 40 cents. Packing for export at 25 cents per barrel is the outside figure, as the larger proportion of the packing is done for 5 to 10 cents per barrel less. Concerning this estimate, careful buyers are doing the work for 25 cents per barrel less on the total, so that for apples bringing 12 to 15 shillings for XXX stock, and an occasional lot of choice apples selling at 20 shillings, it does not seem out of the way to claim that the dealer should have a fair and even liberal return, were he to pay the outside price of $1 per barrel to the grower, for his best stock, which is all most of the buyers take.

We have no markets to encourage fruit growers to take an interest in fruit growing. Orchards are neglected.—(Jas. Brethour, Ontario Co., Ont.

FLOWERING BULBS

FOR FALL PLANTING. FOR THE HOUSE AND GARDEN.

Crocus—Choice, Mixed, All Colors..... 10c. doz., 50c. per 100
Hyacinths " " " ..... 60c. " $4.00 "
Tulips " " " ..... 25c. " $1.25 "

Prices Postpaid. Write for our 1904 Bulb Catalogue—FREE.

Special Prices to Horticultural Societies on application.

JOHN A. BRUCE & CO., Seed Merchants
HAMILTON, CANADA.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

APPLE PRICES ARE NOT SATISFACTORY

So far this season growers are dissatisfied, and with reason, at the prices generally being paid for apples. For the best winter stock in the large producing sections 75 cents to $1 per barrel is being paid quite generally, and in some cases even higher. At this figure sales are being made freely. In most sections, however, prices range from 50 to 60 and 75 cents, and are causing great dissatisfaction. Where growers have facilities for holding their crops, many are doing so in the confident belief that prices will advance considerably as soon as the first rush of stock and the English apples are over. Where growers are unable to store their apples large quantities are going to waste. In a number of districts buyers seem to have reached an understanding that they will not invade each other's territory and thus they are able to keep down prices.

In the United States, according to the exhaustive crop enquiries made by American Agriculturist, up to the third week in October the deadlock between growers and buyers remained practically unbroken. Big operators in New York and the east generally are inclined to set their faces as flint at anything above $1 a barrel, package included. Barrels are high in price, and have been difficult to get, and to this must be added cost of picking. We have been unable to learn of any general trading at better than $1.25 for such standard varieties as Greening, Baldwin, etc., in the central states.

The following special crop reports, secured by The Horticulturist, will give a pretty good idea of conditions generally throughout Ontario :

ONTARIO COUNTY.

Two-thirds of the apple crop has been bought for 50 to 75 cents per barrel. The latter figure is where the grower picks the fruit, which means 60 cents on the tree, as 15 cents is what is paid for picking. I agree with The Horticulturist that buyers could well afford to pay $1 for all good winter apples. I have just received a very complete report of sales in Europe, and deducting all costs, insurance, etc., I fail to see why dealers are not more liberal in their prices. Some fine growers are packing their own fruit and storing, but the majority are anxious to get rid of their fruit for almost any price, as they have no facilities for storing. Cooperation on the part of fruit growers would greatly assist them.—(R. L. Huggard.

The price opened at 50 cents per barrel on the trees, the farmer boarding the men and drawing the apples to the station. Red apples are now selling at 75 cents, and one man got 90 cents per barrel on the tree. These prices are for both No. 1 and No. 2. The apples, with very few exceptions, are sold.—(John Rice.

An estimated crop of 700 barrels sold for $525 cash, the buyer to do all barrelling, the seller to deliver to the depot. This was equal to 71 cents per barrel. In another instance a buyer bought an orchard at 75 cents per barrel, but in packing took only XXX of any sort, and only

FLOWERING BULBS

For Planting this Fall to Flower During the Winter and Spring Months.

Hyacinths, Tulips, Narcissus, Lilies, Etc.

A very choice assortment of specially grown Bulbs, at reasonable prices. Cultural directions free.

Roses, Shrubs, Palms, Azaleas, Boston Ivy, Etc.

A full assortment of well grown stock at low prices. Catalogues free. Send for one now.

THE STEELE BRIGGS SEED CO., Limited

Toronto, Ont. and Winnipeg, Man.

TEN DOLLARS for the Reader who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

winter varieties. Buyers behave very shamefully and deliberately waste the apples. One buyer bought an orchard at 90 cents, the seller to board the pickers. For another orchard of 400 barrels of Spys, and nothing else, a buyer paid $1.50 per barrel on the tree and did all except delivery. The average paid would be about 90 cents per barrel on the tree for winter apples. Buyers go around reporting apples are not selling in England at all and buy very low. Many apples are being stored. I have 1,000 to 1,200 barrels, and am selling Kings and Spys at prices like last year, while the R. I. Greenings, Baldwins, Russets and Bellefleurs are being held until the small lots are cleared out. Commission men from London and Liverpool are trying to get growers to ship to them. One buyer has 500 barrels on hand, which he is packing in boxes.—(Thos: Conant.

YORK COUNTY.

There are very few apple buyers here this year. Some local buyers have bought a few orchards in bulk. Both of these brought an average of 60 cents per barrel. In one case the buyer picked the apples, and in the other the grower had to pick and team them to the station. Four-fifths of all the apples are still in growers' hands.—(J. D. Evans.

OXFORD COUNTY.

All but two or three growers who sprayed have disposed of their apples at 75 cents per barrel. Grower does the picking and hauling. Growers who did not join in the cooperative spraying, as described in The Horticulturist for October, are only able to dispose of the varieties which are not likely to spot, and their best kinds, as Kings. I have heard of no buyer taking an entire crop of any apples which were not sprayed. Unsprayed Greenings and Spys are worthless.—(J. C. Harris.

Apples are not being gathered in most orchards. A few carloads are being exported at 45 to 60 cents per barrel, the grower picking the fruit, buyers doing the packing. The cider and vinegar works are taking an average of 2,000 bushels per day and paying 10 cents per 100 pounds, delivered at the factory. There are very few orchards well cared for, which results in few good first-class apples.—(H. T. Stevens.

WELLINGTON COUNTY.

No one is purchasing apples, and fruit growers have to depend on the local markets for sales. A large proportion of the apples will not be picked.—(Wm. Scott.

NORTHUMBERLAND COUNTY.

Buyers are paying 50 cents for fall and 75 cents for winter apples per barrel. They pick and pack the apples and find the barrels, while the growers deliver them. If growers pick the apples buyers pay 10 cents per barrel more. Farmers have no accommodation for storing the apples, and must sell outright.—(A. J. Lacey.

GREY COUNTY.

The prices being paid are 50 and 75 cents per barrel. I have made a sale of my apples to Carrow, Assa., N. W. T. I furnished the bar-

Dominion Line

MONTREAL TO LIVERPOOL

S. S. Mexican (cold storoge).....Nov. 5
S. S. Canada (cool air and cold storage)..Nov. 12

MONTREAL TO AVONMOUTH (Bristol)

S. S. Turcoman (cold storage).....Nov. 9
S. S. Manxman (cold storage).....Nov. 16

LEYLAND LINE

Montreal to London and Antwerp

S. S. Oxonian (cold storage).....Nov. 5
S. S. Virginian (cold storage).....Nov. 10

The above steamers are specially adapted and fitted up with the most modern improvements for the carriage of apples, butter, cheese, provisions and eggs. Through B./L. granted to and from any point in Canada.

GEO. W. TORRANCE, J. W. WILKINSON, } Western Freight Agents, 28 Wellington Street East, Toronto.

Dominion Line, 17 St. Sacrament Street, Montreal Que.

Reford Agencies

FOR OCEAN LINES.

DONALDSON LINE TO GLASGOW.

S. S. Parthenia. Cold Storage and Steam Fans .....Nov. 3
S. S. Lakonia, " " " ..... " 10
S. S. Athenia, " " " ..... " 17
S. S. Salacia, Steam Fan Ventilation " ..... " 24

THOMSON LINE TO LONDON.

S. S. Devona, Cold Storage, Cool Air and Steam Fans,....Nov. 5
S. S. Kildona, " " " " .... " 12
S. S. Hurona, " " " " .... " 19
S. S. Cervona, " " " " .... " 26

THOMSON LINE TO LEITH.

S. S. Jacona ....Nov. 15

Traffic may be booked with all Railroad Agents or direct with **The ROBERT REFORD CO., Limited, Montreal,** also with **D. O. WOOD, Western Agent, Room 311, Board of Trade, Toronto, Ont.**

A Handsome Calendar will be Given Free to all Readers who buy goods from Adver isers.

rels and put them up on the car at $1.75 per barrel for all kinds. I had about 75 barrels of Talman Sweets and a good many Bellfleurs, and some other varieties that the buyers would give me only 50 cents for.—(H. Hurd.

Ther are very few buyers, and they are only picking from the largest and best orchards. Thousands of barrels of good winter apples are being shaken down and fed to stock and taken to the evaporators. This points strongly to the need for a cooperative association for the handling of all fruit. Barrels are costing 45 cents each by the 100, and 50 cents for less quantities. —(A. W. Walker.

WENTWORTH COUNTY.

Buyers are paying 60 cents a barrel for winter apples, the buyer doing his own picking and the growers the teaming. Growers feel that considering the size of this year's crop and the condition of the market, that they should receive at least $1 per barrel. As soon as the local crop is off the British market Canadian apples should bring better prices.—(Adolphus Pettit.

NORFOLK COUNTY.

The average price being paid for winter apples is 50 cents per barrel, the buyer doing the picking and packing, and the grower boarding the men. Only a few growers have sold at this price. One grower sold his orchard for about $80 and the buyer has taken out about 300 barrels of fruit, taking almost all on the trees. As the grower had to board the men and teams, he does not consider he received over $50 for his crop. We should have a definite statement as to what a No. 2 apple is. Where fruit can be stored I am satisfied growers will do well to hold their apples, as better prices will undoubtedly be paid later.—(Oliver Austin.

PELEE ISLAND, ESSEX COUNTY.

My son and our next neighbor are holding their prices at $1.50 per barrel for picked fruit, those fallen a little less. Where the buyer has a team he comes for them, otherwise they are delivered. None are shipped off the island, as not enough are grown for the home demand. I hear some are selling the crop in the orchard, rough and smooth, the buyer to pick and furnish his own barrels, for 75 cents. This is on the main land, and is about the same price as Pelee growers sell for. Ours are all spoken for, and as few have good cellars to keep fruit in they will sell before Christmas.—(James Sugley.

SIMCOE COUNTY.

The prices commonly paid for apples is for fall 50 cents per barrel, and for winter 75 cents. The buyer picks and packs the apples, the grower delivers the barrels in the orchard and takes them to the storehouse when packed, and also boards the hands while picking, etc. I think there will be many orchards unsold in the Georgian Bay district owing to considerable imperfect fruit, and because many growers prefer to feed the apples than undergo the expense consequent on getting them to market. I think the estimate of prices given in The Horticulturist last month was not too high.—(W. S. Pattullo.

CRAZE & GOODWIN
Fruit Brokers
MANCHESTER

Shippers of Apples to England are invited to correspond with us.

Central Market for nearly **Seven Million** people. Consignments accepted for all English ports.

Highest References.

Cablegrams, " **Campania, Manchester.**"

APPLES EXPORT DIRECT

WOODALL & CO., Liverpool, the Pioneers and reliable firm to Glasgow, London and all other points. Write.

EBEN JAMES, Board of Trade, Toronto, Ont.

THE
Fruit and Vegetable Supply Co.
15 GUN STREET
SPITALFIELDS, LONDON
ENGLAND.

Correspondence invited.

Consignments requested.

Reports on the English Fruit & Vegetable Trade forwarded on application.

Fruit Expert :
Mr. Clifford Clark

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

WELLAND COUNTY.

Owing to its being impossible to get help, the bulk of the apples have been sold on trees by the orchard, so I cannot say what price per barrel prevails. Some crops have been sold for 50 cents per barrel, grower to pick, haul to car and board packers, buyer to pack and furnish barrels. I think if the growers had been able to handle their crop themselves and store until the middle of November they would have no difficulty in netting 75 cents to $1 per barrel. —(G. E. Russell.

LAMBTON COUNTY.

The price paid for apples was 75 cents per barrel, but is now 65 cents. The grower is expected to pick the apples, and the buyer packs them, and the grower gives him his board while packing, and the grower has to deliver them at the station. Not more than 25 per cent. of the growers have disposed of their fruit. Some apples have been sold to the evaporator.—(Wm. Wight.

VICTORIA COUNTY.

Apples are selling as follows: Spys, Bellfleurs and Greening, $1.25 per barrel; Tallman Sweet, Ben Davis and others of that class for 70 to 80 cents per barrel. The grower packs and delivers at those prices, subject to be cut if the packing is not good. One merchant told me he could buy all he wished at this price. Winter apples are about 50 per cent. of a full crop. The great bulk will be marketed this fall. —(Thomas Connolly.

A GIFT OF $10.00

Will be given the reader who buys goods to the greatest value on or before Dec. 15th, 1904, from the advertisers in this month's issue of the Horticulturist. - - - - - - - -

Readers must notify advertisers that they saw their advertisement in this paper.

When applying for the $10 bonus they must inform this office of the name or names of the advertisers they dealt with and the value of the goods they purchased from each. Application for this bonus must be made to this office on or before December 15th 1904

Address,

ADVERTISING MANAGER,

The Canadian Horticulturist, - Toronto, Ont.

FRUIT GROWERS and FARMERS

The Southern Fruit Grower is the best, most practical fruit paper to read 24 to 40 pages every month 50c a year. Send 10c and 10 names of fruit growers and get the paper 6 mos. on trial. Sample free. **Southern Fruit Grower, Box 10, Chattanooga Tenn.**

CLARK & SINCLAIR

Fruit Brokers

DUNDEE, SCOTLAND

Shipments of apples via Glasgow will have every attention.

Dundee is the distributing centre for the whole north of Scotland.

Correspondence invited. Highest reference.

Allan Line, Royal Mail Steamers

MONTREAL TO LIVERPOOL

FAST TWIN SCREW STEAMERS—10,000 TONS.

BAVARIAN, - 4th November.

VICTORIAN, new, 11th November.

Average time of passage from port to port, eight days.

Each steamer is fitted with refrigerators for cargo requiring cold storage, and in addition a thorough system of ventilation in compartments where fruit is stowed.

MONTREAL to GLASGOW Every Thursday
and
MONTREAL to LONDON, Direct, every alternate Thursday.

The greatest care taken in handling apples.

Rates and further particulars on application to

J. D. HUNTER, WESTERN FREIGHT AGENT,
77 Yonge Street, Toronto, Ont.

or H. A. ALLAN, Montreal.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

FLOWER POTS

ROSE JARS and FANCY WARE

MAY BE HAD FROM

DAVISVILLE POTTERIES

JOHN DAVIS & SONS

DAVISVILLE P.O., ONT.

Our Rose Jars and Pots will be used at the Provincial Fruit, Flower and Honey Show ; examine them.

Furness, Withy & Co., LIMITED.

STEAMSHIP AGENTS

AND BROKERS, MONTREAL.

Proposed Sailings :

MONTREAL TO MANCHESTER.

"Man. City"	from Montreal.	Oct.	30
"Man. Commerce"	"	"	Nov. 8
"Man. Importer"	"	"	Nov. 15
"Man. Trader"	"	"	Nov. 22

All the above Steamers excepting the "Man. Importer" have cold storage.

FRUIT GROWERS and FARMERS

The Southern Fruit Grower is the best, most practical fruit paper to read. 24 to 40 pages every month. 50c a year. Send 10c and 10 names of fruit growers and get the paper 6 mos. on trial. Sample free. Southern Fruit Grower, Box 10, Chattanooga, Tenn

Beaver Post Hole Digger

The Greatest Labor Saving Device of its kind in the World.

No wood to Check, Rot or Break.

Will do its work under the most adverse circumstances, and with the least Labor.

Send for Descriptive Printed Matter.

Canada Foundry Company, Limited.

HEAD OFFICE and WORKS: TORONTO, ONT.

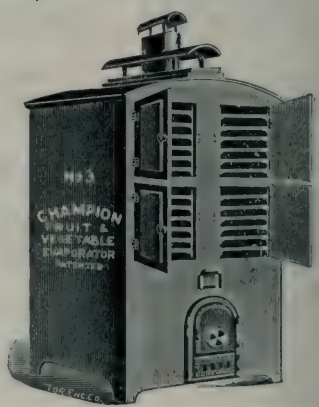
DISTRICT OFFICES:

Montreal, Halifax, Ottawa, Winnipeg, Vancouver, Roosland, Calgary.

Champion Fruit Evaporators

Save Your Fruit

And dry it with .. the .. Champion Fruit Evaporator



Dries all kinds of fruit and vegetables, producing a superior quality of clean, white fruit. It is made of galvanized iron, is lined throughout with asbestos, is fire proof and portable. Made in five sizes.

Catalogue for the asking.

Manufacturers of the celebrated **Champion Maple Syrup Evaporator.**

THE GRIMM MFG. CO.,

84 Wellington Street, MONTREAL

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

CHRISTMAS FANCIES

OH, sweet are the songs of Christmas waits,
And the chimes are ringing clear,
And the forest of Christmas trees bend low
With the fruitage of the year.

Come, make the most of Christmas day,
Old Time steps out so fast;
The curtain rings down on the play,
'Twill soon be Christmas past.

Then give the gift of free good-will,
It never comes amiss,
For all the world would be at peace
With such a boon as this.

Come weal, come woe, we'll come again
Next year when rings the chime;
Be sure there's Christmas in your hearts
From now until that time.

ARTHUR WARD.

One of the Lovely Scenes in the Floral Rink at the Provincial Fruit, Flower and Honey Show.

The exhibit of flowers, at the Provincial Fruit, Flower and Honey Show, held in Toronto, Nov. 15-19, was a surprise to all who saw it. It was not only the largest exhibit of the kind ever made in Canada but the quality of the flowers shown was exceptionally fine. The illustration conveys a slight idea of the beauty of some of the blooms and of the decorations. Cards announcing that The Canadian Horticulturist would have a full report of the show were placed around the hall, and one of these was caught by the photographer. (From a photograph taken specially for The Canadian Hor.iculturist)

The Canadian Horticulturist

DECEMBER, 1904

VOLUME XXVII NUMBER 12

THE PROVINCIAL FRUIT, FLOWER AND HONEY SHOW

THE horticultural interests of Ontario have been obviously advanced by The Provincial Fruit, Flower and Honey Show held in Toronto November 15-19. The exhibits, in all sections, were ahead of expectations and were a revelation of the importance of the horticultural interests of the province. The thousands of people who attended have been thoroughly awakened to the fact that fruit, flowers and honey are three important products of Ontario; that there is a possibility for great development in this direction and that everything possible should be done to forward the interests of these three allied industries.

This impression having been created it is generally felt that the exhibition was a decided success, that it should be repeated next year and that there is every reason to believe that this first show will develop into an annual affair of great importance. The exhibits of fruit, of flowers and of honey were the largest that have ever been made in Canada and the quality of the exhibits was of the best.

Toronto has held some splendid flower shows in the past but this year's display set a new mark of excellence. The exhibit of fruit was also a record breaker. Owing to the lateness of the season the apples shown were well colored which added greatly to the pleasing effect of the display. More honey was shown than at the Toronto Industrial Exposition and the exhibits were arranged to the best possible advantage. This made the apiary section one of the features of the exhibition.

The show was held in the two Granite rinks, on Church street, the flowers being on view in the smaller of the rinks and the fruit and honey in the larger. Both rinks were tastefully decorated, the former by evergreens, wild smilax and palms and the latter by bunting and flags. The combined effect of the decorations and exhibits was most pleasing.

EDUCATIONAL FEATURES WERE VALUABLE.

Probably the most striking feature of the exhibition was its value from an educational standpoint. In the floral rink the exhibits of many different varieties of chrysanthemums, carnations and roses bore printed cards giving the names of the varieties.

Even greater attention was given to the educational features connected with the exhibit of fruit. All the principal varieties bore printed cards giving their names, the months of the year during which they can be bought, a brief description of their suitability for dessert or cooking purposes and of their value for home or foreign markets.

A most excellent exhibit was made by the Women's Institute Branch of the Ontario Department of Agriculture under the direct supervision of Supt. G. A. Putnam. A large space, at one end of the fruit rink, was occupied by this exhibit. Numerous methods of cooking and preserving fruits were

shown and were described by three members of the Women's Institute staff who were in constant attendance. Preserved and jellied fruits, apple pies, baked apples and numerous other toothsome dishes were shown and drew attention to the value and possibilities of fruit as a food. Neatly printed circulars were distributed. These named the varieties of fruit best adapted for certain purposes and contained a number of simple recipes. The value of this exhibit was quickly recognized by all who saw it and numerous were the questions asked by lady visitors.

The fruit experiment stations, under the direction of the experimenters and of Supt. Linus Woolverton, of Grimsby, made a splendid exhibit of apples, grapes, pears and bottled fruit illustrative of the possibilities of the different portions of the province for the growing of fruit.

Other valuable educational features were the demonstrations in fruit packing given by representatives of the Dominion Fruit Division; representative exhibits of apples from different provinces, also arranged by the Fruit Division, and the display of injurious insects, branches and leaves of trees attacked by them, etc., furnished by the Ontario Agricultural College. Further mention of these exhibits will be found elsewhere in this issue.

THE FORMAL OPENING.

A pleasing feature was the formal opening by His Excellency Lieut.-Governor and Mrs. Mortimer Clark, which took place the afternoon of the first day. Those present included the Hon. John Dryden, Minister of Agriculture, the president of the exhibition Mr. R. J. Score, the secretary Mr. H. B. Cowan, Mr. W. H. Bunting, president of the Ontario Fruit Growers' Association, Messrs. J. McP. Ross, vice-president; H. R. Frankland, Edward Tyrrell, Bernard Saunders and others of the directors of the exhibition and well known public men. Governor and Mrs. Clark were both greatly pleased with the beauty and completeness of the exhibition and expressed hearty sympathy with the objects and aims of the show and a hope that it would prove a great success.

FRUIT AND FLOWER MATTERS UNDER DEBATE

THE annual convention of the Ontario Fruit Growers' Association and the convention of delegates from the provincial horticultural societies, held in connection with the Provincial Fruit, Flower and Honey Show, were well attended and interesting and proved a valuable feature of the exhibition.

These meetings were held in the members' assembly room at the Parliament Buildings, about half a mile from the Granite rinks where the exhibition took place. The fact that the meetings and the exhibition could not be held in the same building caused considerable inconvenience but it had been found impossible to make better arrangements. In the event of the exhibition being made an annual affair a determined effort will have to be made to secure accommodation that will provide for the holding of the exhibition and of these meetings in the same building.

The opening session of the horticultural convention was held Tuesday afternoon, November 15th, and was well attended. The chairman, Mr. Edward Tyrrell, on behalf of the Toronto Horticultural Society, extended a cordial welcome to the delegates.

The opening paper was presented by Prof. H. L. Hutt, of Guelph, on "The Planting of the Home and School Grounds." This was followed by an interesting address by Mr. A. K. Goodman, of Cayuga, who spoke on the subject "How Can we Best Interest

our Young People in Floral and Horticultural Matters." This address is published elsewhere in this issue. Following this the delegates joined in a discussion of the lines of work that can be carried on by horticultural societies and described the methods their organizations have adopted.

A public mass meeting was held Tuesday evening in which the members of all the different organizations connected with the exhibition joined. The gathering, which passed off very successfully, was held in the Y. M. C. A. Hall. The Hon. John Dryden presided and as usual made a most capable chairman.

An address of welcome was given by Mayor Thos. Urquhart, of Toronto, who in the course of his remarks expressed the hope that the exhibition will become an annual affair and that in the near future Toronto will be able to provide a suitable building for such a gathering.

In his address the Hon. John Dryden referred to the importance of the horticultural interests of the province and urged the citizens of Toronto to attend the exhibition. He announced that the department realized the need for better instruction in horticultural matters and that it had felt that an exhibition, such as the one being held, would prove valuable educationally. The importance of seeing that Canadian fruit is properly packed was mentioned and in this connection Mr. Dryden stated he was willing to select and send some Canadians to the United States to learn the best methods in vogue there, or to import some of the most successful packers from the United States, to show our Canadian packers how fruit should be packed. This announcement met with general approval.

An interesting address was delivered by Dr. James Fletcher, of the Central Experimental Farm, Ottawa, who spoke on "What the Busy Bee is Doing," and succeeded in thoroughly interesting every person present. A scholarly address was given by Mr. C. C. James, Deputy Minister of Agriculture, who spoke on "Horticulture in Ontario." The immense importance of the floral interests of the United States were mentioned, as well as the need for a greater interest in horticultural matters. The gathering was a success and next year will undoubtedly be more largely attended.

At the Wednesday morning session of the Horticultural convention Mr. H. B. Cowan, Supt of Horticultural Societies, spoke on the relation of the Agricultural and Arts Act to horticultural societies. This was followed by a most interesting discussion, an account of which appears in this issue. A paper on "Best annuals for Cut Flowers," presented by Mr. Roderick Cameron, of Niagara Falls, Ont., is also published in this issue.

Three addresses, all of great interest, were delivered at the afternoon meeting of the convention. The meeting was presided over by Hon. John Dryden, Minister of Agriculture. As usual, when he is chairman, Mr. Dryden kept everything moving smoothly and the gathering passed off very successfully. The subjects discussed were "Hardy Vines for the House and Garden," by Mr. W. T. Macoun, Ottawa; "What May be Grown in a Small Garden During One Season," by Mr. R. B. Whyte, Ottawa, and the "Care of Window Plants," by Wm. Hunt, of the O. A. C., Guelph. Extracts from several of these addresses are published in this issue of The Horticulturist.

The closing session of the horticultural convention was held Wednesday evening. The principal address of the evening was delivered by Mr. H. H. Groff, of Simcoe, the noted originator of Gladioli, who spoke on the subject, "Improvement of Plants by Hybridization." A number of those present attended the meeting solely to hear Mr. Groff. An interesting address on "The

Relation of Birds to Horticulture" was delivered by Mr. C. W. Nash, of Toronto. The closing address was one of the best of the entire convention and was delivered by Mr. J. O. McCulloch, the president of the Hamilton Horticultural Society, who spoke on "Border Flowers" and illustrated his remarks by means of stereoptican views. As a result of years of work Mr. McCulloch has gathered a valuable collection of views of floral subjects and this feature of his address was greatly enjoyed.

WHAT THE FRUIT GROWERS DISCUSSED

The various sessions of the Fruit Growers' convention were well attended and considerable interest was manifested in the addresses presented and the resultant discussions. The reports by the officers were all of a most interesting nature and showed that effective and valuable work had been accomplished during the year for the fruit growers of the province.

Much of the credit for this work, it was felt, was due to the energetic efforts of Mr. W. H. Bunting, who received a very flattering evidence of the appreciation of those present when they created the office of honorable president for the special purpose of retaining Mr. Bunting in connection with the association.

The election of officers resulted as follows:

Hon. President, W. H. Bunting, St. Catharines.

President, Alex. McNeill, Ottawa.

Vice-President, Jas. S. Scarff, Woodstock.

Sec.-Treas., P. W. Hodgetts, Toronto.

Directors: A. D. Harkness, Irena; R. B. Whyte, Ottawa; Harold Jones, Maitland; W. H. Dempsey, Trenton; Wm. Rickard, Newcastle; Elmer Lick, Oshawa; Murray Pettit, Winona; C. W. Vanduzer, Grimsby; H. H. Groff, Simcoe; A. E. Sherrington, Walkerton; T. H. Race, Mitchell; J. L. Hilborn, Leamington; G. C. Caston, Craighurst.

At the evening session a very complete report of the year's work was presented by Mr. P. W. Hodgetts, the secretary-treasurer, which showed that the financial standing of the association, after defraying all expenses connected with The Horticulturist, the holding of the special meetings, the estimated expense connected with the fruit exhibition, etc., was in a very satisfactory condition.

One of the most important subjects dealt with at the convention was the consideration of the report presented by the directors of the association recommending that The Canadian Horticulturist should be placed in the hands of a joint stock company composed entirely of fruit growers and florists. In this connection the business manager and editor of The Horticulturist, Mr. H. B. Cowan, announced that the magazine had reached the stage where it needs to be greatly developed and it should, therefore, be placed on a business basis. It was announced that in the event of a joint stock company being formed the association would be given $1,000 worth of stock in the company for its good will and that it would also be given an opportunity to purchase $1,000 in stock entitling the president of the association to a seat on the board of directors of the company. The report of the directors was unanimously endorsed by the convention and a committee was appointed to see that before the paper is finally handed over to the company the interests of the association are properly safeguarded.

CONSIDERED THE SHOW A SUCCESS.

The idea of continuing the Provincial Fruit, Flower and Honey Show was endorsed and a resolution was carried unanimously instructing the directors of the asso-

Here They Are; the Fruit Growers We Read About.

At the close of one of the sessions of the Ontario Fruit Growers' Convention, held in Toronto, November 16-18, the photographer for The Canadian Horticulturist managed to round up some of the growers and to take this snap shot when they were all trying to look their best. Starting with the bashful gentleman on the extreme left, Mr. W. T. Macoun, of Ottawa, the other gentlemen in the front row are Messrs. Thos. Beall, of Lindsay; J. L. Hilborn, of Leamington; A. E. Sherrington, of Walkerton; W. H. Bunting, of St. Catharines; Harold Powell, U. S. Department of Agriculture, Washington; E. Morris, Fonthill; J. S. Scarff, of Woodstock; Harold Jones, of Maitland; and Prof. H. L. Hutt, of Guelph. A number of other well known horticulturists are in the group, but their positions cannot be described definitely.

ciation to take such steps as may seem advisable to continue the identification of the association with the united show.

The opening meeting of the convention Thursday morning was largely devoted to business. This included the consideration of the president's address, the appointment of committees and the hearing of reports.

In the afternoon Mr. G. H. Powell, of Washington, D. C., gave a valuable address on "Cold Storage," a liberal extract from which is published in this issue. "Fruit Shipments to Winnipeg" was the subject of an address by Prof. Reynolds, of Guelph. The results of this shipment have already been made known through The Horticulturist. The important subject "The Conditions Surrounding the Canned Fruit Industry," was handled by Mr. W. P. Gamble, of the O. A. C., Guelph. This address is published in full in this number of The Horticulturist.

The fruit experimenters had the Wednesday evening meeting all to themselves. The chairman was Mr. G. C. Creelman, of Guelph, the chairman of the Board of Fruit Experiment Stations. Reports were received from the various experiment stations and were of a most interesting ature. Outlines of these reports will be duly published in The Horticulturist.

The two sessions of the Fruit Growers' Association on Friday were both extremely interesting. In the morning the subjects dis cussed and the speakers were "Fungous Diseases of the Grape," by Prof. Lochhead, of Guelph, and Mr. W. T. Macoun, of Ottawa; and "Latest Results of Spraying for the San Jose Scale," by Prof. R. Harcourt, of Guelph, and Inspector J. F. Smith of Glanford. Several of these addresses p-pear in this issue of The Horticulturist.

The closing session of the Fruit Growers' Association was devoted to the consideration of cooperative work in 1904 and proved a most interesting gathering. The speakers were Messrs. A. E. Sherrington, of Walkerton; D. Johnson, of Forest; Elmer Lick, of Oshawa; Robert Thompson, of St. Catharines, and A. W. Peart, of Burlington. A report of this discussion appears in this issue of The Horticulturist.

A BEAUTIFUL DISPLAY OF FLOWERS

MANY were the expressions of delight heard in the floral rink at the Fruit, Flower and Honey Show in regard to the exceptionally fine exhibit of flowers. Not only was the show the largest but it was the best ever held in Toronto. The various exhibits were grouped in such a manner that they showed to the best advantage and the general effect of the exhibits and decorations was most pleasing.

The first few days a change was made in the exhibits. Tuesday was chrysanthemum day and Wednesday carnation day. On Thursday roses, violets and made-up work were shown for the first time. An idea of the extent of the floral display may be gained from the fact that there were over 1,000 chrysanthemums, 3,000 carnations and 2,000 roses shown.

The classes were so well filled the judges had a hard task when called on to award the prizes, as the quality of the exhibits and the quantity made it exceedingly difficult to select the winners. The most attractive vase of chrysanthemums was 30 blooms of Dr. Oronhyatekha, shown by Mr. W. J. Lawrence, of Eglinton, which won the cup presented for this class. Messrs. Breetmeyer & Sons, of Detroit, exhibited their new seedling Majestic, and it proved a splendid keeper, as it arrived in Toronto by mistake on the Wednesday previous to the show, and when the flowers were sold on Saturday they were still in excellent condition. The Steele, Briggs Co. displayed a vase of Strathcona, a new variety shown for the first time, and captured first for the best six white. This variety is certainly the best white introduced and will doubtless be grown more extensively next year.

That grand new pink chrysanthemum, Dr. Enguehard, was greatly admired. It is a full, round bloom of a beautiful shade and much superior to anything yet shown. Perhaps the growers have not yet learned how to handle W. Duckham to the best advantage, as the bloom shown were slightly disappointing after all that has been heard of this variety. Sunburst, which was introduced by Nathan Smith this year, is a very good yellow and should be largely grown next season. While Dr. Oronhyatekha is the largest yellow grown, yet that grand variety Golden Wedding still holds its own, as was proven by its taking first over Oronhyatekha in the best yellow. The largest chrysanthemum shown was one of Oronhyatekha, grown by J. H. Dunlop, which measured 24 inches in circumference.

A large display of chrysanthemums was made by Wm. Gammage & Sons, of London, including six new varieties, introductions of 1904, which won first prize. This firm also won first for the best 12 chrysanthemums in the show. Their exhibits were of superior quality, indicating the excellent methods of culture practised by this firm. All the jars used in the show for cut flowers were of the J. Davis & Sons' manufacture, and being nicely colored added much to the attractiveness of the display.

A FINE EXHIBIT OF BUSH PLANTS.

The bush plants were exceedingly fine. Those grown by the Steele, Briggs Company and the Allan Gardens were especially worthy of mention. The groups of palms, ferns and chrysanthemums were so well arranged that it took the judges some time to reach a decision. The group from the Allan Gardens, as arranged by Mr. E. F. Collins, won the award and the Hallam cup. The group of foliage plants shown by Mr. Chambers, of Exhibition Park, took first prize in this class, as did also his group of orchids, Manton Bros. being second. Splendid taste was displayed in the artistic arrangement of these groups and they were perhaps the finest ever seen in Canada.

The competition was very keen in the carnation section, Charles Turp scoring 6 first prizes and two second prizes out of the 8 entries. Great credit is due this grower as

R. J. SCORE, OF TORONTO

The presence of a number of shrewd business men on the general committee, in charge of the Provincial Fruit, Flower and Honey Show, had a great deal to do with the succes of the recent exhibition. Among these must be mentioned the chairman of the committee, Mr. R. J. Score, whose assistance proved of great value. For many years Mr. Score has been closely identified with the Toronto Industrial Exhibition, the Toronto Electoral District Society and o her public organizations. In Mr. Score's opinion the Fruit, Flower and Honey Show is going to become an annual affair of great importance.

he has only three houses of 150 feet long and had not the quantity of bloom most of his competitors had from which to choose.

The rose sections were well filled. The Dale Estate, of Brampton, and J. H. Dunlop carried away most of the prizes. The vases of Mrs. Pierpont Morgan were superior to anything of this variety ever seen in Toronto, as were also the Canadian Queen exhibited by the same firms. Mr. J. H. Dunlop displayed a vase of five fine Perle Des Jardines which secured first prize. The American Beauty roses were a great attraction for the ladies. Those exhibited by the T. Eaton Floral Department were especially fine. A very fine display of violets was made by Wm. Findlay. As a comparison Mr. Findlay showed two bunches of violets as grown ten years ago, beside which his first prize bunches were as pansies.

The funeral designs were a revelation in the art of floral designing, the judges stating they were better than anything they had ever seen. Those arranged by J. Simmons and his chief designer were exceptionally fine.

The new fern, Tarrytown, exhibited by Pierson & Co. was a splendid specimen and was awarded a certificate of merit. At the close of the show Saturday night the auction sale of cut flowers and plants, conducted by Auctioneer Thos. Manton, proved a great success as every bloom in the hall was sold at a reasonable price. The general opinion of the florists is that the show was a decided success and that the foundation has been laid for a show greater than ever.

CO-OPERATION AMONG FRUIT GROWERS IN ONTARIO

THAT the question of cooperation on the part of fruit growers is a live one was shown at the annual convention of the Fruit Growers' Association in November, by the great interest taken in the session, which was devoted to the consideration of that subject. It was much the most interesting session of the convention and proved that the fruit growers' cooperative associations in Ontario are doing splendid work.

The discussion was opened by Mr. A. E. Sherrington, of Walkerton. "Our association," said Mr. Sherrington, "was organized two years ago last spring. This season it has been conducted on the central packing house system, which has proved perfectly satisfactory. A year ago each member was allowed to pack his own fruit and was required to place his name on the package in which way he became responsible for his own packing. This system did not work satisfactorily, and I believe it is not a good one. Until we have central packing stations we will never have uniform

packing. In this connection I might state we need some means by which instruction can be given in packing. I heard what the Hon. John Dryden, Minister of Agriculture, said in regard to securing a man to give instructions in packing, and I heartily approve of the idea. If classes could be held at the Agricultural College uniform methods of packing could there be taught which would be of great benefit. Every man has his own idea of what No. 1 fruit is, and if every person packs his own fruit there can be no uniformity.

"In addition to uniform methods of packing we need cooperation with the consumer. It has been said that commission men may object to our entering their field and filling the orders of customers direct. What do we owe commission men that we should heed their objections? The fact is they owe us far more than we owe them. We should have some method by which we will know how much fruit is received in the principal consuming centres, what it has cost to handle this fruit and what the fruit realized. This is also true of shipments to Great Britain. Why should we send our fruit to strangers and allow them to do practically what they like with it?

"In these cooperative associations which are being formed we must not look for large returns at first. In some cases it may be one or two years before these associations can be placed on a satisfactory basis. If we continue, however, we will perfect our methods and finally become established on a firm footing. The greatest weakness of the various associations I have established has lain in the fact that there is no means by which these various associations can be united. They are separate and lack cohesion. If we can arrange any method by which these associations can become identified with the Ontario Fruit Growers' Association it would soon greatly increase the membership of the association and be a benefit to all concerned.

"In the Walkerville association we were able this year to pack apples for 10 to 15 cents per barrel. In other years it has cost us 25 to 30 cents. This year we have also obtained better prices and, in addition, have been able to sell thousands of barrels of apples that would have been wasted in other years through the buyers refusing to buy them when they were ready for market.

"Growers should remember that cooperation will not advance the prices of poor fruit. Even an association is unable to obtain good prices for anything except No. 1 fruit. Cooperation really begins in the orchard in the growing of the fruit."

Question: "How do you form these associations?"

HOW ASSOCIATIONS ARE FORMED.

Mr. Sherrington: "When I enter a district I first speak on the nature of cooperation, tell what it has accomplished and outline methods by which growers can cooperate. Those present are invited to take the matter up. If they feel inclined to do so they are asked to pay a membership fee of 25 cents each, arrange to hold meetings for discussions, elect officers, etc. The trouble in many cases is that there seems to be no one person ready to take hold and direct such an effort. In each case where I organized an association the growers had to be left to their own resources. Where associations were formed the growers were instructed to prepare their own rules, appoint a manager and make all arrangements in regard to the grading and shipping of their fruit."

Question: "How are these managers paid?"

Mr. Sherrington: "The manager should be paid what he is worth. Some associations pay their managers five cents per barrel. Last year the Walkerville Association paid me 3 per cent. The year before my expenses amounted to 2 cents per barrel. On this allowance I attended to all correspondence, paid for telegrams and telephone

W. H. BUNTING, ST. CATHARINES

For two years the Ontario Fruit Growers Association has been favored by having a most energetic and capable chairman in the person of Mr. W. H. Bunting, of St. Catharines. Under Mr. Bunting's management the association has advocated a number of measures of great importance to the fruit growers of the province, and has brought about a number of reforms notably decided improvements in the transportation of fruit by the railway companies. So thoroughly had Mr. Bunting prepared his case for the fruit growers, and so clearly did he give his evidence before the Railway Commission last summer, he was highly complimented by Hon. A. G. Blair, the chairman of the commission, who said he had never heard a case better presented. As Mr. Bunting had refused re-election to the presidency or as director, the Ontario Fruit Growers, at their recent annual convention, created the office of honorary president for the especial purpose of honoring Mr. Bunting and retaining him on the board of the association.

messages, looked after the packing, and in fact did all the work."

Question: "When you were through did you not think you had had the worst of the bargain?"

Mr. Sherrington: "No. I thought, if anything, that I had been overpaid."

Question: "Have you tried handling tender fruits?"

Mr. Sherrington: "No, but cooperation in handling such fruits will work to splendid advantage."

Question: "How would you handle peaches?"

Mr. Sherrington: "Easily. Some of the best cooperative associations in the world are located in Ohio, such as the one Mr. Owens described at the last convention of the Fruit Growers' Association. There are also some splendid cooperative associations in California.

"This year the Walkerton fruit growers formed a joint stock company and bought a building near the station. A rule was passed which compelled all members to take their fruit to the central packing house to be graded. Early in the season we bought our boxes and barrels wholesale, thereby making a great saving. Where farmers did not have spring wagons we had them put hay in the bottom of their wagons which prevented their fruit being bruised. As soon as the apples were received girls and boys were set to work to cull them, while one man looked after the expert packing. The results of the grading of each man's fruit were credited to him in a book kept for that purpose. If a man had 10½ barrels of No. 1 fruit he received credit for that amount."

Mr. W. T. Macoun, Ottawa: "What do you do with growers who bring in barrels of fruit that is soft?"

Mr. Sherrington: "If not up to the standard we refuse to handle the apples. Our building is 30 x 100 feet and has a cellar, in which the hardy winter stock is kept until we are ready to handle it. Most of our winter apples are still in the cellar. In this way it is not necessary for us to leave our fruit in the orchards, in all kinds of weather, where most of it would be ruined. Most of the fruit which is now in the cellar of our building would have been lost had we not had this place in which to store it. As it is, the apples of our section are now safely stored ready to be marketed when the time comes.

"This year we marketed large quantities

of such varieties as the Duchess and Astrachan, which in other years were wasted."

Mr. Haines, St. Catharines: "Do I understand that each fruit grower loses his identity when he turns his fruit over to your company, or do you allow the growers names to appear on their boxes while stating that the apples have been graded by your company? There is considerable difference in the quality of No. 1 fruit. This difference is so great as to make it possible to have various grades of No. 1 fruit. Growers who produce the best grades of this fruit should, in my opinion, receive proper credit for it."

Mr. Sherrington: "We only have three grades and growers are not allowed to place their names on their boxes."

Robert Thompson, St. Catharines: "I would not want to join a company of that kind. There is a difference of at least 25 cents in the value of different grades of No. 1 fruit, and even more in No. 2 fruit. It seems unjust that the man, who carefully cultivates his orchard and prunes his trees, that he may produce the very best fruit, should not obtain due credit for it."

Alex. McNeill, Ottawa: "One of the greatest weaknesses among fruit growers is their lack of sentiment and the manner in which they refuse to sink their own identity for the benefit of their fellow growers. We will never succeed with these cooperative associations until each grower is willing to sink his own interests for the benefit of the common cause. In a general way I think we are very much improved in this respect.'

Mr. Sherrington: "In my case I did not need to join a cooperative association. I was growing enough apples to enable me to ship for myself, but my neighbors were not in such a position. By cooperating we have practically shut the buyers out of the district. Before we cooperated buyers used to visit our section and purchase a few crops at low prices. By threatening not to buy the crops of other growers they were able to secure them at ridiculously low figures, and in this way the average price was kept down to the disadvantage of all the growers. Since the association has been formed the buyers have not been able to do this, and we have all shared the benefit. Growers must work together if they are to succeed.

(Continued on page 537.)

HANDLING THE FRUIT CROP FOR COLD STORAGE*

G. HAROLD POWELL, U. S. DEPARTMENT OF AGRICULTURE.

THE Department of Agriculture of the United States has been conducting investigations in regard to the cold storage of fruit. These have concerned the influence of geographic and climatic conditions, cultural practices in the orchard, commercial methods of picking, handling and shiping, conditions in cold storage warehouses, and the keeping quality and ultimate value of the fruit.

We used to think (and this feeling is apparently still shared by a considerable number of apple men) that the temperature of the warehouse was the one factor that determined the behavior of the fruit in its compartments. If the temperature of the rooms was only cold enough it was expected that the fruit ought to keep under all conditions. When the barrels came out of the warehouse in the spring, slack packed, or the apples were decayed and mussy, or more scab had developed on the fruit than it showed at the picking time, these difficulties and many others were invariably attributed to the faulty management of the warehouse. The records are replete with claims of the apple

* Extract from an address delivered at the annual convention of the Ontario Fruit Growers' Association held in Toronto, November 16-18, in connection with The Provincial Fruit, Flower and Honey Show.

men against the warehousemen for cold storage charges and other damages, especially when the selling price of the fruit has been lower than anticipated.

Happily, for all interests concerned, the handling and the storing of fruit, like the care of the orchard, are being reduced to a scientific basis. We are coming to appreciate, more and more, that the warehouse is the last link in the chain of successful fruit growing, depending for its strength on the character of the management of the orchard, the care in picking, packing, transporting and other handling of the fruit before it reaches the storage chambers.

The cold temperature of the warehouse exerts no mysterious influence on fruits; it simply retards the ripening processes and checks, or may prevent, the development of its diseases. A fruit is a living body; it ripens slowly in a low temperature and quickly when the temperature is high. The diseases spread rapidly in high temperatures, and some diseases, like the apple scab and bitter rot, are checked by the temperature best adapted to the storage of fruit. Other diseases, like the molds, which produce the soft brown rot in apples and pears and in some other fruits, and which cause most of the repacking of apples in the spring, grow slowly in the lowest temperature in which the fruit may be stored without freezing.

The cold storage treatment does not obliterate the differences that exist in the apples when they enter the warehouse; it rather retards, while not preventing, their normal development. If two lots of apples differ in ripeness or in the amount of disease with which they are affected, in the amount of bruising, or if the conditions in which they were grown cause them to vary, cold storage can only check the development of these differences.

Cultural conditions produce an important influence on the keeping of fruit, though this feature is scarcely recognized in practical warehousing. Apples, for instance, that are grown rapidly and to abnormal size, like those from young trees or from orchards unduly stimulated by tillage and cover crops; fruit produced on quick-acting sandy soils, or that from trees bearing a light crop, continue to ripen relatively fast in the storage house and reaches the end of its life earlier in the season than the same variety when grown more slowly. Such sorts as York Imperial, Hubbardston, Pound Sweet and Northern Spy, from young trees, deteriorate one to four months earlier than the same varieties from older trees.

LINUS WOOLVERTON B. A.

The recently appointed Superintendent of the Ontario Fruit Experiment Stations, Mr. Linus Woolverton, B.A., of Grimsby, has long been well known to readers of The Canadian Horticulturist as the editor of this magazine and through the numerous public offices he has held. During November Mr. Woolverton tendered his resignation as editor of The Horticulturist to the directors of the Ontario Fruit Growers Association that he may be free to devote his energies to the new duties he has assumed. Few fruit growers in the world are better posted, in regard to different varieties of fruit, than Mr. Woolverton, who has made a special study of this subject for years. His wide knowledge of varieties will, undoubtedly, be of great value him in his new line of work.

The warehouse cannot be expected to obliterate these inherent differences in the fruit. The grower and the handler should, on the other hand, endeavor to acquaint himself with the influence of cultural conditions on the behavior of the different varieties and their disposition from the warehouse should be governed accordingly.

We used to think (and this opinion is still commonly held by apple growers and dealers alike), that fruit should be picked somewhat green to insure the best keeping quality. Investigations have shown this opinion to be erroneous. It has been our experience that the best keeping apples or peaches are those that have attained the highest color and fullest size, but which are still hard and firm when picked. The pear has kept best when it attains full size and is picked before yellowish tints have appeared.

In our fruit storage investigations we have observed that after green fruit is picked it ripens more quickly than more mature fruit of the same variety, and the chemical changes have been shown to progress more rapidly. Green picked fruit, therefore, reaches the end of its life in the warehouse as quickly, or even more so than the latter. Poorly colored fruit brings the lowest price; it does not attract the customer; it never acquires that exquisite bouquet, or aroma, or that fine quality that are characteristic of a highly colored, well matured specimen.

CAUSES SCALD.

The premature picking of the apple makes it especially susceptible to scald. Apple scald is the most serious warehouse trouble in certain varieties like Rhode Island Greening, Grimes' Golden, York Imperial nd Wagener. It appears to be the result of a ferment or enzyme working beneath the skin. It attacks the apple late in the storage season on the immature or light colored side, and a crop picked prematurely is particularly susceptible to it on account of its green condition. Highly colored apples are less seriously affected, and a crop picked when the fruit has attained full size and deep color may escape the difficulty until very late in the season, provided the fruit is stored quickly after picking, in a low temperature. Were the average grower to allow his crop of apples to hang on the trees longer than is customary it would, therefore, result in an improvement in the keeping qualities of the fruit, better flavor and quality, greater commercial value and comparative freedom from storage scald.

If I may be pardoned for digressing from the discussion of the storage problem and entering the field of orchard management, I would suggest that you consider the advisability of picking over the trees of varieties of fine quality two or three times, taking the fruit in each picking that has attained the highest color. I know of no system of apple culture or of harvesting by which the entire crop of a tree can be picked with a uniform degree of maturity at one time. The apple, like the peach tree, bears fruit that varies several days, or even weeks, in degree of maturity. The fruit on the upper and outside branches ripens first, and the interior shaded fruit later, but, by picking such varieties as the Northern Spy, Wagener, Esopus Spitzenburg and other varieties of fine quality two or three times, at intervals of ten days to three weeks, the general average in size and color of the fruit of the entire tree may be improved considerably. I would suggest, also, that much of the poor color in apples, especially in old trees under high culture, is the result of the increased leaf surface induced by this treatment. It is probable that this fault may be corrected to a large extent by judicious pruning to let the light and air in to the interior branches.

The opinion used to be quite general among apple men that it was necessary for fruit to "sweat" after picking to give it

good keeping quality. It was, therefore, placed in piles in the orchard or in buildings before packing and storing. The investigations of our department have shown that this opinion is bad in theory and worse in practice. The fruit that keeps the best is that which is stored the quickest after picking; and the fruit that rots the most in the warehouse is that which is delayed in the orchard or under other conditions in transit to the warehouse.

More than three-fourths of the practical difficulties with fruit in storage houses is the result of rough handling, coupled with delaying the storage of the fruit after it is picked. As soon as fruit is severed from the tree its chemical and physiological activities are accelerated. It ripens with unusual rapidity and most rapidly when the weather is warm. As the fruit is usually moist in the barrels, or in piles, the conditions are favorable for the rapid spread of diseases. During a delay of ten days in warm weather the fruit may have consumed a large part of its remaining life and the disease may have become firmly established before it enters the warehouse. Slack packed barrels, rotten fruit and financial loss are the inevitable results of this practice.

Immediate storage after picking is one of the essentials in successful fruit storage. If fruit, which has been stored quickly after packing, decays, there is a fair presumption that the conditions in which it was grown produced an inherent weakness in it and that the owner showed poor judgment in holding it beyond the normal storage season of the variety. This, of course, is provided the warehouse has not been grossly mismanaged.

INTERESTING FRUIT EXHIBITS

THE educational features at the Provincial Fruit, Flower and Honey Show were so well arranged the average fruit grower might have spent a couple of days very profitably examining the exhibits and questioning the exhibitors. In many cases the exhibits bore printed cards or slips of paper explaining their educational features.

The exhibits made by the fruit experiment stations, which are located in different sections of the province, were very instructive. The main portion of this exhibit appeared on an elevated stand in the center of the hall and attracted general attention. The experimenters who exhibited were the superintendent, Mr. Linus Woolverton, of Grimsby, and Messrs. Harold Jones, of Maitland, for Eastern Ontario; W. H. Dempsey, of Trenton, for the Bay of Quinte district; Chas. Young, of Richard's Landing, for St. Joseph's Island and Algoma; G. E. Caston, of Craighurst, for Simcoe district; M. Pettit, of Winona, for the Wentworth district, and J. L. Hilborn, of Leamington, for the Essex district.

"An important part of our exhibit, as compared with former years," said Supt. Linus Woolverton, who was in attendance at the show throughout the week, while speaking to a representative of The Horticulturist, "is the separation of the desirable from the undesirable varieties of fruit. For example Mr. M. Pettit, of the Wentworth station, who is showing about 127 varieties of grapes, when asked to set aside those which he considered profitable to grow from a commercial standpoint, selected only 13 kinds, or about one-tenth of the total number. These varieties were, of the black grapes, Campbell, Morden, Concord and Wilder; of the red, Lindley, Delaware, Agawam, Catawba and Vergennes, and of the white, Niagara and Moore's Diamond.

"A similar result occurred with Mr. Dempsey's collection of apples, for he set aside nearly 100 varieties which he had

One Year's Product of an Apple Tree in Eastern Ontario.

Over 12 barrels of apples taken this fall from a McIntosh tree growing in the orchard of Dr. J. Harkness & Sons, of Trena, in Dundas county, as shown by this illustration, should have an influence in removing the impression that apples cannot be grown to advantage in Eastern Ontario. The tree from which these apples were gathered is 30 years old. By thorough spraying Dr. Harkness finds little difficulty securing a large proportion of No. 1 fruit. Can any Canadian fruit grower send The Horticulturist a photograph that can beat this one?

tested and proved unprofitable. His complete list for profit was as follows, named in order of ripening: Duchess, Gravenstein, Alexander, Trenton, Wealthy, Fameuse, McIntosh, Blenheim, Greening, King, Ontario, Hubbardston, Spy, Ben Davis and Stark, of which he could not show the first four, as they were past season. Some of these were useful for both dessert and cooking, but for dessert he would add Garden Gem, Cox's Orange, Banana, Boiken and Swazie.

"The St. Lawrence station, conducted by Mr. Harold Jones, showed three hardy varieties as the most profitable in that district, viz., Snow, Scarlet Pippin and McIntosh. Three pyramids of these varieties formed an attractive feature of the exhibit. Four other varieties not on exhibition have proved profitable also, viz., Duchess, Alexander, St. Lawrence and Wealthy, but the latter is not equal to the same variety grown along the Ottawa valley.

"The Algoma exhibit," continued Mr. Woolverton, "was a surprise to many, showing fair samples of Alexander, Wealthy, Wolf River and Longfield, varieties which will do well in that climate, with the Duchess to precede them. The Japan plums, Mr. Young reports, have done well in St. Joseph's Island, especially Burbank and Ogon. In Simcoe county and the Lake Huron district nearly all the varieties do well which succeed in the Bay of Quinte district, and splendid samples are exhibited by Mr. Sherrington, of Walkerton, and Mr. Caston, of Craighurst."

FRUIT PACKING DEMONSTRATIONS.

A large space at one end of the rink was occupied by representatives of the Dominion Fruit Division, of Ottawa, who gave demonstrations in packing fruit for export and exhibited boxes and barrels suitable for the trade. The exhibit included packing house utensils, a packing table, presses, etc. Talks were given at frequent intervals explaining the special features of the work and important points relating to fruit packing. About 50 barrels of fruit were handled in the demonstrations and valuable information was

(Continued on page 534.)

PREVENTION OF THE APPLE SCAB

"THERE is no question of more vital interest to the general fruit grower than that of the apple scab. The prime question is, Under what conditions of care and management of orchards can it be reduced to a minimum? The bottom of this question has not yet been reached, conclusions up to this time being empirical, rather than based on sufficiently wide facts."

These remarks, made to The Horticulturist recently by Mr. A. W. Peart, of Burlington, led to an attempt being made to obtain the views, on this subject, of a number of well known authorities, including both practical growers as well as experimenters. The majority of those heard from, it will be seen, advocate thorough spraying and judicious thinning as the best means of preventing the scab.

"I have," writes Joseph Tweddle, of Fruitland, "obtained the desired results in regard to preventing apple scab by thinning the bearing parts of the tree to let in plenty of light and air, and by spraying all parts of the tree. Spray thoroughly with Bordeaux once before bloom and at least twice after. Give the second application just after the bloom falls, the third two weeks later, and follow with a fourth, should long continued rains of two days or more take place. The mixture should be applied quickly after rain, from each side of the tree as the wind changes. It is necessary that the work should be done thoroughly."

Much the same views were given by Mr. W. H. Dempsey, of Trenton, who states that he has had good results from the Bordeaux mixture in keeping the apple scab in check whenever it was applied carefully and at the proper time. Mr. Dempsey has noticed that Fameuse apples sprayed carefully just before the bloom opened gave better results than those sprayed only after the bloom had fallen. It is not safe to neglect spraying, which should be done three times, once before bloom and twice after.

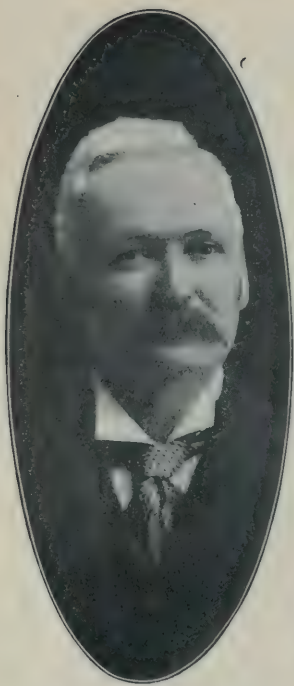
The practice of Mr. A. E. Sherrington, of Walkerton, is to give clean and thorough cultivation to impart a vigorous and thrifty growth. With this, judicious pruning is done annually so as to let the light and air circulate freely through the trees. Last, but by no means least, Mr. Sherrington sprays thoroughly and systematically. He does not believe in drenching the trees, but in applying the spray in as fine a mist as possible. Were more growers to do this, Mr. Sherrington believes, the apple scab would be reduced to a minimum.

WHAT THE EXPERIMENTERS SAY.

The views of several well known experimenters secured, include those of Prof. L. R. Taft, of the Michigan Agricultural College, Lansing, Mich.; Prof. John Craig, of the Cornell College of Agriculture, Ithaca, N. Y., and Prof. H. L. Hutt, of the Agricultural College, Guelph, Ont. Their opinions are here given:

Prof. L. R. Taft: The extent of the injury to apple trees by scab is determined, to a large degree, by the climatic conditions, although the age and condition of the trees have much to do with it. Our growers, who have practiced thorough spraying of their apple orchards with Bordeaux mixture, have had comparatively little trouble from it. Orchards on rolling land and with trees pruned so as to give fairly open heads are much less injured than those on low land or in hollows. When the trees are sprayed it is advisable to make at least one application before the blossoms open, preferably at the time the petals begin to show. A second spraying should be given as soon as the petals begin to fall, and a third at the end of about two weeks. Ordinarily this will suffice until the latter part of July, when a spraying of Bordeau mixture and an arsenite is advisable to prevent injury by the apple scab as well as the attack of the second brood of codling moths.

Some of our growers are making use of



J. McP. ROSS.

The vice-president of the Fruit, Flower and Honey Show, Mr. J. McPherson Ross, of Toronto, has had a wide horticultural experience. For several years Mr. Ross was actively engaged in the nursery business. He is an entertaining speaker and has contributed some interesting articles to The Horticulturist. As a member of the Toronto Horticultural Society Mr. Ross has held numerous offices, including that of president.

dust sprays, but, although fairly good results are secured against leaf eating insects and the codling moth, it does not appear to be nearly as effectual against apple scab as the liquid Bordeaux mixture. When the trees are growing under proper conditions and receive from three to five applications of Bordeaux mixture, according to the variety and climatic conditions, the injury from apple scab is reduced to a minimum.

SETTLING DOWN TO SPRAYING.

Prof. John Craig: New York fruit growers are using no specially new methods for controlling apple scab. They are realizing more keenly every year, however, that thoroughness of method is more important than small differences of formula or small variations in time of application, and that it is impracticable to make exact rules covering time of application and formula used. The character of the season will or should vary the treatment year by year. Our season this year may be considered to present the normal type—perhaps a little more rainy than usual.

The best growers are settling down to the habit of spraying thoroughly with Bordeaux mixture and an arsenite just before the blossoms open, again after the blossoms fall, and a third time when it appears desirable. Sometimes they are satisfied with two sprayings. As a rule, however, three applications are made. Last year the best results were secured by those who sprayed rather late in the season, and so it was the previous season. It is safe to say, finally, that nothing specially new in the methods of preventing apple scab have developed during the past year or two, but that fruit growers are becoming each year more impressed with the necessity of doing the work thoroughly. This means proper equipment in the way of stock materials and power pumps.

LET THE HOGS IN THE ORCHARD.

Prof. H. L. Hutt: It has long been established, by repeated experiments, that apple scab can be controlled by thorough spraying with Bordeaux mixture. The mixture should be applied before the buds open in the spring, then again after the blossoms have fallen, and should be repeated two or three times at intervals of ten days or two weeks, depending somewhat on the season. If rains are frequent the mixture should be applied oftener. Usually four or five sprayings are sufficient to keep the disease in check.

It is a good plan to allow hogs in the orchard to gather up all the fallen and diseased apples, as these contain spores which carry over the disease from one season to another. Spraying should not be neglected on trees when not carrying a crop, nor even on young trees not yet in bearing, for the disease lives on the foliage as well as the fruit, and it is only by thorough and systematic spraying from year to year that it can be reduced to a minimum.

I have taken The Canadian Horticulturist for years and could not get along without it very well. I find it very helpful and interesting.—(Frank Metcalfe, Huron Co., Ont.

More Fruit Being Grown

THE advantages offered by the counties bordering the north shore of Lake Ontario for fruit growing, more particularly apples and pears, are rapidly becoming better recognized. This is shown by the large increase that has taken place of late years in the acreage under fruit. An editorial representative of The Horticulturist who, recently, visited some of the leading fruit farms in Durham county, located between Newcastle and Bowmanville, was impressed with this fact.

"This is a splendid apple growing section," was the view expressed by W. H. Gibson, of Newcastle. "Apples in our locality grow to a very large size, and have splendid keeping qualities. A good crop can be grown here nine years out of then. Our local dealers, who store quantities of apples from all parts of the province, including many from the Georgian Bay and Lake Huron districts, say our apples have considerably the best keeping qualities.

"Within a mile of my place there are 200 acres in young orchards, most of which are just coming into bearing. Among the well known farmers who have young orchards are Messrs. Jonas Samis, of Newcastle, 30 acres; Richard Foster, of Bowmanville, 15 acres; Henry Bowen, of Orono, 20 acres; David Gibson, of Newcastle, 20 acres; Richard Osborne, of Bowmanville, 15 acres, and a number of others. Many Stark, Baldwin and Greening apples are being raised, as well as some Russet and Ben Davis.

WELL ADAPTED FOR PEAR GROWING.

"This district also seems well adapted for pear growing, where the soil is suitable. One hundred bearing pear trees in my orchard yield me fully as good returns per tree as the trees in my apple orchard. My pears are shipped to Montreal by boat, which I find is the cheapest way, the cost of shipment being about 30 cents per barrel, including wharfage.

"My apples are sold to a dealer in Newcastle. They are mostly late keeping varieties and should be stored, but as I have no storehouse I am compelled to dispose of them to the dealers early in the season. Last year the Ben Davis variety paid me the best, largely because it bore heavily. The dealer who handled the apples informed me that the Ben Davis also paid him the best.

"This spring I made an experiment with the Ben Davis trees in one of the rows in my orchard. A graft from a Spy tree was grafted on each tree. If the market for Ben Davis apples fails I will remove the Ben Davis limbs and encourage the grafts. Next spring I will probably graft 100 more trees in the same way."

Black Smut on Apple Trees

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

I have some young apple trees, planted last year, that during the summer were covered with a black smut. Is this a disease, and if so, what is the remedy?—(H. S. P., Courtice, Ont.

The smutty appearance of your apple trees was no doubt due to a fungus which is in itself harmless to the trees, but which shows the presence of aphides or plant lice. These little green insects live on the leaves and young shoots, sucking the juice of the plant. While engaged in this they secrete a sweet liquid, sometimes known as honey-dew, and it is in this honey-dew that the fungus you describe as black smut finds a medium for its growth.

Another indication of the presence of these little insects during the season they are active, is the presence of numerous ants running up and down the trunks of the trees. The ants are not injurious to the tree, nor even to the plant lice, for they use the latter as cows and live upon the honey liquid which they excrete.

The plant lice are very injurious to the tree, and should be dealt with as soon as their presence is noted. They are difficult to destroy, as they feed on the under side of the leaf, which in time curls over and protects them from applications sprayed on the trees. The best method of destroying them is to spray the trees with tobacco water or kerosene emulsion as soon as the aphis make their appearance in the spring.

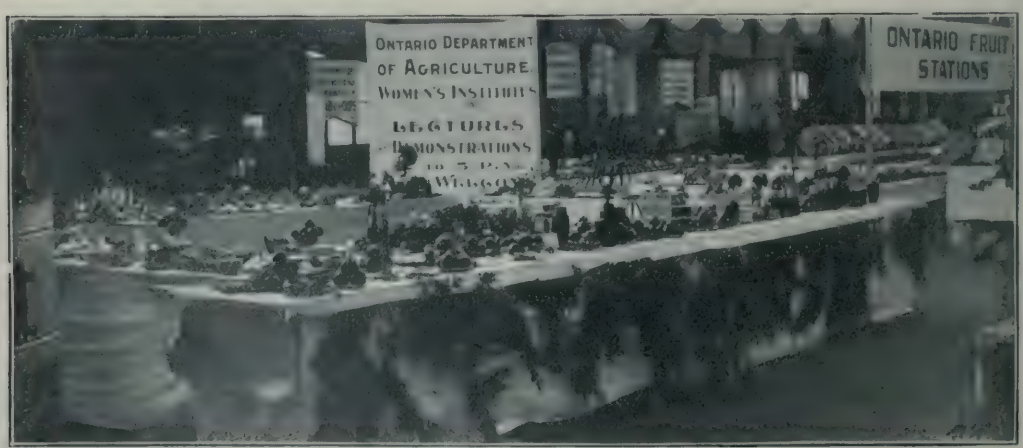
Packing Pears

It is most unfortunate that fruit growers cannot sell XXX stock f.o.b. We ought to combine, after the scheme suggested by Mr. Murray Pettit, of Winona, and each section of the fruit district of Ontario send a representative to a general board meeting weekly, who should set the prices for the sale of our fruit for the week in advance. We had better let a part of our fruit waste in the orchards than give it away, as we often do, and pay for the privilege. For near markets no package equals the 11-quart basket for pears. It is convenient, economical and attractive. All ripe pears must go in them be held in storage for home trade, it is still the best package.

The box recommended by the Fruit Growers' Association for pears is just half the bushel apple box, and measures 5 x 11 x 20, inside measurement. Pack from the narrow side, placing butts out and stems in; in this way the fruit fits firmly and neatly. If necessary a little excelsior should be used to cushion the lid when pressing it in place and nailing it fast.

It will require 900 of these boxes, more or less, for a carload, and the lot must be quickly made up as soon as the work is once undertaken. For this reason a co-operative shipping company should at once operative shipping company should be formed in each fruit growing centre.—W.

When the fruit growers of Ontario have learned to produce only fruit of the best quality, and never allow inferior samples upon a tree to reach maturity, they will have learned a great secret of success in fruit growing. Then we can ship with confidence to any market and expect reasonable results.—(L. W.



The Women's Department at the Fruit Show.

Probably not five per cent of the women in the cities know the best variety of fruit to use for cooking for dessert purposes, nor the month of the year when these varieties are at their best. Could their knowledge on these points be extended a great increase would soon take place in the demand for fruit. A splendid effor to furnish this information was made at the Fruit, Flower and Honey Show by members of the Women's Institute staff, who gave demonstrations in the preparation of fruit for the table, and described the best varieties to use. Illustration shows the institute department at the show, which at all times presented a most attractive appearance. (From a photo taken expressly for The Canadian Horticulturist.)

The Cranberry Pipin

Can you give me some information about the bearing habits, color of fruit, etc., of the Cranberry Pippin? I set two trees of this variety in the spring of '01, and they are now among the most promising in my orchard. The Baldwin, Stark and Gano varieties are about dead from winter killing. The Spy, Ontario and Golden Russet are also damaged. If the Cranberry Pippin is hardy and up to the mark in other respects it will be a great addition.—(J. C. Gilman, Fredericton, N. B.

As the Cranberry Pippin is an apple that has been attracting considerable attention, The Horticulturist, on receipt of the above request for information, wrote to a number of the experiment stations to ascertain how the experimental trees are succeeding. The following replies have been received:

AT THE TRENTON STATION.

The Cranberry Pippin has been perfectly hardy in my orchard, as well as in others I know. With me it has fruited very sparingly, although the trees have been planted 24 years. Some that I have top worked, where scions were taken from productive trees, have been very slow in bearing. In other orchards it has been very productive, almost as good as the Ben Davis. It has a good bright red color, with broken stripes and splashes of darker red and large gray dots. The quality is poor to medium. It has always sold at good prices in England. It requires to be picked early, as it will fall to the ground much earlier than the other varieties mentioned.—(W. H. Dempsey, Fruit Exp't Station, Trenton, Ont.

HARDY IN THE GEORGIAN BAY SECTION.

The Cranberry Pippin began to bear with me when eight years old, and so far has proved hardy. Its origin was accidental on a farm near Hudson river, N. Y. The tree is vigorous, healthy, spreading, and fairly productive, and the fruit medium to large, roundish oblate; skin, smooth, yellow shaded and striped with two shades of red; stem, slender, one and one-eighth inches long, in a deep cavity, calyx closed in a wide wrinkled basin. The flesh is white, firm, crisp, moderately juicy and sub-acid, but the quality is only fair. The season is from November to February.—(A. E. Sherrington, Bruce County Exp't Station.

IT IS A PRODUCTIVE VARIETY.

The Cranberry Pippin is an apple of American origin, being a chance seedling which grew on a farm along the Hudson river in New York State. Mr. Linus Woolverton, of Grimsby, has grown it and speaks of it highly as a commercial variety for that section. It has not been considered hardy enough for general cultivation throughout Ontario, being recommended for southern sections of the province or counties bordering along the lakes. The account of its hardiness in New Brunswick is interesting. The tree is a vigorous, healthy grower, of spreading habit, and quite productive; the fruit is medium to large, roundish in shape, tending to be conic; the skin is usually smooth, although sometimes showing warty knots, which distinguish it from most other varieties; the ground color is a lemon-yellow, shaded and striped with light and dark shades of red; the stem is much longer and more slender than in most varieties, the cavity being deep and calyx closed; the flesh is white, firm, crisp, moderately juicy, and sub-acid; the quality being only fair. It is in season from December to March, and in storage will keep even later.—(Prof. H. L. Hutt, Ont. Agri. College, Guelph.

At the Central Experimental Farm, Ottawa, Mr. W. T. Macoun, the horticulturist, has found the Cranberry Pippin as hardy as the Stark, Spy, Gano and Golden Russet, which leads him to believe it is possible that Mr. Gilman may not have the true Cranberry Pippin. The tree has proved a very strong, spreading grower at Ottawa, and productive.

The Canadian Horticulturist is a source of delight to us.—(J. J. Ireland, Dufferin Co., Ont.

Native Plums

PROF. H. L. HUTT, O. A. C., GUELPH.

There are a large number of wild plum trees growing in waste places in this vicinity which are heavily laden with fruit almost every year. Few of them, unfortunately, bring their fruit to perfection. The plums appear to be all right until about the last of July or early in August, when a blight strikes them. The skin of the plum shows spotted, and the plum dries up and becomes useless. As it is very difficult to make a success of growing nursery plum trees, you will confer a great benefit if you can give a cause and a remedy for this blight on the wild plum, as they seem to be much hardier than the cultivated varieties.—(F. A. Kerfoot, Minesing. Ont.

It is impossible to say definitely what is the trouble with the wild plums in your section without seeing specimens of the disease. I am inclined to believe that it is the fungus Cladosporium carpophilum, commonly known as scab, which is peculiar to the wild plums. This disease may no doubt be held in check by thorough spraying with the Bordeaux mixture, but it is doubtful if this would be profitable on the wild varieties.

The difficulty of growing nursery grown trees is probably due to the fact that you have not secured from the nursery the hardy varieties suitable for your section. Most of the European plums cannot be relied on for any length of time in your section. If you would consult with Mr. G. C. Caston, of Craighurst, only a few miles from your place, he could no doubt give you some valuable information regarding the kinds he has tried at his experiment station. I believe his experience has been that even the best of the European varieties cannot be relied on for any length of time, as they gradually succumb to winter killing.

There are many improved varieties of the native or wild plums which have been improved by cultivation, and are well worth a trial. They are exceedingly hardy, and although not as large as the European varieties, they are in some respects superior to them in quality. Mr. W. T. Macoun, of the Central Experimental Farm, at Ottawa, gives the following list as a dozen of the best among seventy-six varieties which he has fruited at Ottawa: Aitkin, City, Cheeney, Silas Wilson, Bixby, Hawkeye, Gaylord, Wyant, New Ulm, American Eagle, Wolf and Hammer.

These are given in order of ripening and cover the season from the last of August to the end of September. Some of these are not grown by Canadian nurserymen although they may be obtained from some of the American nurseries. J. W. Kerr, of Denton, Maryland, has probably given more attention to the propagation of the American varieties of plums than any other nurseryman, and his list contains nearly all the best varieties of this class grown on the continent.

Undesirable Novelties

Are the Iceburg blackberry and the Logan berry profitable, marketable and good shipping berries?—J. B. Bruce, Kanagan Landing, B. C.

These plants are presumably the stock in trade of an agent who wants to sell, at a high price, some novelties about which no one knows anything. The Iceberg blackberry is interesting as a curiosity, and the Logan berry, because it is a cross between the blackberry and the raspberry; it is about the size of the former, and unites the flavor of both.—W.

Robbins Are of Great Value in an orchard, even if they do eat some fruit. I am something of a taxidermist, and it is my belief that it would be high folly to destroy any species of the small birds, except the English sparrow. In one robin that I opened were several small moths, three or four small black beetles, a few worms and two curculios, thus showing the robin's value as an insect destroyer. They eat considerable fruit, but the good they do overbalances that bad habit. The best remedy is to plant a few more cherry trees so the birds may have a share without curtailing the supply of the fruit grower.—(Wm. Idle, Clarksburg, Ont.

A Section of One of the Benches at the Big Flower Show.

A slight conception of the excellence of the floral exhibits at the big Fruit, Flower and Honey Show may be gained by this illustration. One of the best features of the exhibit of flowers was the large number of new blooms that were shown for the first time. As will be seen the various exhibits all bore cards giving their names, which added greatly to the interest taken in the show by the general public. (From a photograph taken specially for The Canadian Horticulturist.)

BEST ANNUALS AND PERENNIALS FOR CUT FLOWERS*

RODERICK CAMERON, NIAGARA FALLS SOUTH, ONT.

WHEN we ask what is a good cut flower for table decoration, etc., there are two main points to be considered: First, stem; second, substance or durability. For vases it is imperative that flowers have a good stem. There are many excellent flowers, but owing to the shortness of their stems they are unfit for table decoration, except perhaps to the commercial florist.

Some of the most beautiful flowers in the garden are ephemeral, and would be a total disappointment as cut flowers; others again as the heliotrope, lack stamina, and would not keep in water but for a very short time. The hollyhock is an excellent example of substance, but the whole plant has to be cut. The salpiglossis has a good stem, but lacks durability.

Bearing the points of adaptability in mind, there are other secondary considerations, including the one of color. As there are no two persons whose tastes are exactly alike, this is a most touchy subject; one person just revelling in a certain color, while another thinks "it's just horrid." There is a good deal of error and misconception regarding colors and the harmonizing of the same, which ought to be dealt with from a scientific as well as from the æsthetic point of view. Then again there are plenty of flowers with good stems, good substance and good colors, such as the zinnia, that are so stiff and lacking grace they cannot be called good cut flowers. Such flowers, except in the hands of an artist, would only tend towards the stiff, formal and mathematically exact bouquets of years ago, which looked as if they were formed in a mould. We will not err if we follow nature closely, whether in the growing of our floral pets, the grouping together of our collections, or the making up of a bouquet of nature's choicest gems.

It cannot be too widely made known that there is a wealth of decorative floral beauty to be secured by utilizing a judicious selec-

* Extract from a paper presented at the horticultural convention held in Toronto, November 15 and 16, in connection with The Provincial Fruit, Flower and Honey Show. The rest of this paper will be published in The Horticulturist at an early date.

tion of hardy perennials. The growing popularity and increased usefulness of hardy perennials is sufficient evidence of their value, if any is needed. Very little care is required with perennials after they are planted, other than keeping them free from weeds and the dividing of the roots when they become too large. The offsets may be planted in other desirable spots or given to friends.

SOME GOOD ANNUALS.

The choice of the professional florist in annuals is limited. The Aster is probably entitled to first place, because they are produced in any desired color, on long stems, and they can be used with their own foliage. If seeds are sown from time to time during the summer the blooms can be had up to the time of hard frost. They are used for all purposes on account of their various colors and lasting qualities. The aster carries as many desirable points for cutting purposes as any other flower in the garden.

The next choice would probably be Mignonette, principally on account of the odor of the flowers, and their adaptability for all purposes. The Sweet Peas would likely come next, and for the same reasons as the Mignonette. Centaureas, or Sweet Sultans, are beautiful, large, and sweet scented flowers that should be more grown. They are produced freely on long stems, are very easily grown, and their lasting qualities make them ideal for cutting. Their height is two to three feet.

The Ten-week Stocks are probably more grown than any other annual. No plant of its size will produce more bloom or is better suited for cutting for the border. They are extensively grown by the commercial men for cutting during the winter. Sweet Scabious, or Morning Bride, of late years, have been very much improved in size and in the colour of their blooms. The stems are ideal entitling these plants to rank among the first on our list as cut flowers. They are produced in all colours, and grow to about three feet in height. The hardiness and very free blooming qualities of the candytuft, even when sown in the open border, claim for it a first place among annuals. The flowers are produced in several colors, the plants being nine inches to a foot high, good to cut, and suitable for the front row in the border.

Celosia Plumossus, Plumed Cockscomb, has been much improved lately, and those wishing color can obtain it in these beautiful plants. They are choice objects when planted in a small round bed in mixed colors or used as a line in a ribbon border. They are grand to cut for autumn coloring effects when used with the colored leaves of other plants. They can also be used as dried flowers and can be had in almost any shade of color. The plants are one to two feet high. Rudbeckia Tricolor Superba is an annual that has taken a prominent place of late as a cut flower. Its growth is very simple and the plants are worthy of a place in any garden.

The annual Gaillardias are among the most charming flowers to cut and for the border on account of the long duration of their blooming, which lasts from early summer until they are cut down by hard frost. They stand wind and rain better than any other flower we are acquainted with. Their quick growth and hardy nature commend them to all lovers of flowers.

There is no annual flower more popular than Nasturtiums. They are a magnificent class which presents all the richest and most varied shades found in flowers. The blooms are much used for table decorations. The taller varieties cannot be surpassed as a trellis covering, and the dwarf varieties are to be found in every window box and hanging basket. If long lengths are cut from the taller ones in the fall and placed in a glass celery dish full of water they will root in the parlor window and be a thing of

The Fruit Growers' New President.

The new president of the Ontario Fruit Growers' Association, Mr. Alex. McNeill, of Ottawa, who is also the chief of the fruit division of the Dominion Department of Agriculture, is too well known to need any introduction to readers of The Horticulturist. As a director and vice-president of the association Mr. McNeill has won the right to hold the position he now occupies. Already he has assumed his new duties with all his customary enthusiasm, and a year of hard work for the association may be looked forward to.

beauty during the winter. Even the roots, as seen through the glass, are very pretty.

The varieties mentioned are the annuals I consider the best for cut bloom. They are standard favorites which novelties have not been able to drive from the field.

Like many of the good things we have in Ottawa, my roses are of Irish extraction. They are sent here about the last of October. They can be planted where they are going to grow, or better I think, they may be heeled in for the winter and planted out in the spring. My experience is against bringing out roses in spring. Spring growth over there, starts as early as the month of March.—(W. G. Black, Ottawa.

Send us a card if you are not receiving The Horticulturist regularly. We will attend to it.

The Care of Carnations

CARNATIONS that have been planted in the open, according to Mr. E. Dale, of Brampton, should nave a good start before July and should have been pinched back at least once. The hoeing should be well attended to and the soil not disturbed to a depth of over an inch.

"This work," said Mr. Dale recently to an editorial representative of The Horticulturist, "should always be done as soon as possible after a rain. The planting in should begin not later than the first week in August, giving the houses light shade for the first week or ten days. As soon as the plants have become well established see that all shading is removed, giving as much light and air as possible.

"Supports should be put into the beds immediately after the planting is done. Blooming commences about the middle of August and continues until the following summer. Good standard varieties with me are: Enchantress (light pink); Glacier and White Cloud (white); Adonis, G. H. Crane and Flamingo (scarlet); Governor Roosvelt (crimson); Lawson (cerise), and Golden Beauty (yellow)."

HAVE HAD A GOOD EFFECT.—There is no doubt that the city garden contests inaugurated in Ottawa by Her Excellency Lady Minto have been of very great value in promoting private gardening as a means of beautifying the city. Any person who pays any attention to this subject will notice the great improvement which has taken place both in the gardens owned by the people directly interested in the contest and in those owned by people who, while not competing, recognize the value of beautiful surroundings to the home and who have found how easily good results in this direction are attained with very little expense and time given to that fascinating art, the cultivation of flowers.—(J. E. Northwood, Ottawa.

INTERESTING YOUNG PEOPLE IN HORTICULTURE*

A. K. GOODMAN, CAYUGA, ONT.

HOW can we best interest our young people in the garden and in the orchard? There is one way, and that is the best way. Become interested yourselves. Become enthusiastically interested. It is a case of come along boys and girls, not go on boys and girls. To do any good, you must be unselfish, and in the accomplishment of any object there must be preparation.

Children's characters are more likely to be strengthened and developed along their proper lines in the brightest and happiest surroundings. Lovely flowers and green trees should, where possible, mark the abode of Canadians.

Children are imitators, and will in time, be largely what we have made them by our example. Always welcome the children into the garden and teach them as much as they are willing to learn, but never detain them when they want to play. It will not be long before they will coax you into the garden.

A busy man cannot garden all day except for profit, but the average Canadian in the small towns and villages, has enough time on his hands to make a creditable showing. I have found that it is desirable to avoid the midsummer flowers.

My garden opens with tulips. These are massed and arranged in various ways and planted in the open to receive full sunlight. Good drainage is provided, care being taken to avoid the roots of trees. They are planted four inches deep and top-dressed with well rotted manure. It is more satisfactory, though not necessary, to take up tulips every year. Then follow the general bedding out, after danger of frost is over, from the hot-bed, of caladiums, geraniums, stocks, asters, ageratum, salvia, etc., while the flowering shrubs and early perennials for a time hold the place of vantage.

With June the grandest flower of all reigns supreme, until the end of July. I love to grow a rose, because it takes such a determined effort to reach the best possible. Roses love the open and need a clay soil, enriched with cow manure, lime and wood ashes, as well as freedom to expand, good drainage and deep root feeding. Plant in the fall, prune in the spring, and spray every morning with tobacco water and lime, or soapsuds. Simply conquer the insect enemy completely. Do not tolerate any half-way measures and your reward will be a great source of pleasure to yourself and friends.

From the June roses you can go to the Ramblers (they will give you bloom for a month if you shorten the canes, cutting the old ones out every three years), to other climbers, and to the tea roses, from which you will receive monthly crops of roses until the frost. After the roses I satisfy myself with the formal beds, and in September enjoy a gorgeous display of asters and gladioli.

THE EFFECT ON CHILDREN.

The object of interesting our young people in horticultural work is to strengthen their morality, train their character and make them useful citizens. State education in the schools is fast changing from the old law of "Rod, Rule and Remembrance," in what was once a goal to the natural interest idea. Interest is said to be the master key of all possible education, and it conquers all. The schools of the province are doing noble work and horticulture and floriculture take a large part of the credit for the advance.

In Canada we are fast entering on our growing time. The horticultural societies must plead and work for play grounds, tree planting, gardens and parks. Hundreds of our village schools are practically without play grounds. A provincial horticultural

* Extract from a paper read at the provincial horticultural convention held in Toronto, November 15 and 16, in connection with The Provincial Fruit, Flower and Honey Show.

society would strengthen the hands of local enthusiasts.

The joy of possession is a rule that works admirably in the garden. If a child plants and attends to an asparagus or strawberry bed, cuts or picks the product, carries it in sympathy to the sick, or, if its favorite color is planted, cared for, developed into perfection and it is then allowed to gather and give—it will soon learn to act with knowledge and discretion. To plant a grape vine, prune it, watch it attain maturity, and then to gather and enjoy it thoughtfully, is the highway to wisdom.

But, first and always, cultivate and develop the inherent natural love of flowers. Work that the children may plant; care for, that the children may gather, until in time their natures will respond to the noblest ambitions of man.

FLOWER AND PLANT LORE—THE MISTLETOE

EDWARD TYRRELL, TORONTO.

THE season of Christmas (Yule tide) will soon be round, which brings the Holly inside our churches and the Mistletoe inside our parlors. A hint has been received that some of our young readers might be pleased to have a short account of the mistletoe and its associations, interwoven as they are so closely with Christmas and New Year, but as Lord Dundreary was wont to remark, "no fellow can find out," and I am not certain that I will make it clear why Roger claims the privilege to kiss Margery under the mistletoe at Christmas, as it appears to have baffled our antiquaries.

I have clear recollections, when a boy, going with others, a day or so before Christmas, to cut holly and mistletoe for our homes; our hands and clothes had a very different appearance on our return than when we set out. The holly in Norfolk, England, has grand sharp spines, but they can not be compared to the thorns of the white thorn (May tree), from which the mistletoe is gathered. Although the mistletoe grows freely on the apple and lime trees we sought it on the trees that were the hardest to climb.

The mistletoe (Viscum album) is a true

One of the Mass Effects at the Big Flower Show.

In addition to the large display of cut flowers in the floral rink, at The Provincial Fruit, Flower and Honey Show, there were some exceptionally handsome mass effects which attracted general attention. Several of these were arranged with great care and were much admired. One, prepared by Manton Bros., of Eglinton, was a splendid reproduction of a hill side in a wood and as such was a real work of art. (From a photograph taken specially for The Canadian Horticulturist.)

parasite, and when its seed has once found a congenial home in the bark of a tree it drives its roots deep into the wood, from whence it draws its nourishment. The mysterious origin of the mistletoe was perhaps one cause for the religious veneration in which it was held by the ancients who seem to have regarded it as a sort of Melchisedick among plants. Another reason why it has received such a marked degree of honor is its parasitical manner of growth, which was in primitive times ascribed to the intervention of the gods, for its seed was said to be deposited on certain trees by birds, the messengers of the gods, if not by the gods themselves in disguise. When found growing on the oak its presence was attributed specially to the gods, and as such was treated with the deepest reverence.

The ancient Druids regarded the mistletoe, when growing on an oak tree, as sacred, and the gathering of it was a most important ceremony with them. Five days after the new moon they went in stately procession to the forest and raised an altar of grass beneath the finest mistletoe bearing oak they could find. The Arch Druid, clad in a white robe, ascended the tree, and with a golden sickle cuts the mistletoe, which was caught in a white cloth held by four priests, for its efficacy, it was held, would be injured if it touched the earth. Two white bulls that never had a yoke on them, were sacrificed amid many religious ceremonies and feasts. When the Druidical religion was overthrown the church tried in vain to set aside the mistletoe as a gross heathen superstition, but the edicts of emperors and the canons of councils were unable to put it down.

The Scandinavians dedicated the mistletoe to Freya, their goddess of love and beauty, but it is curious to note that by the Romans it was held sacred to Proserpina, her doves it was that guided Æneas to the tree wherein grew the golden bough different from the tree itself. Although the mistletoe in these legends is associated with both love and death, and later stories do so also as we find in the old song, "The Mistletoe Bough," still it is as being sacred to Freya, the goddess of love, that the mistletoe will be most remembered, especially among lovers to whom its sentimental associations will far outweigh any amount of antiquarion lore.

> Freya from whom flows every bliss,
> The winning smile, the melting kiss.

Hence arose the custom (proper or improper to Christmas) of suspending the mistletoe in halls and kitchens with the privilege that custom confers. The mistletoe had been used in the decoration of churches, but the associations connected with it were not in keeping with a sacred edifice, so in the course of time they were left out. What, however, may not be quite proper for a church may be proper in another place. Even to the present day the idea of a kiss under the mistletoe bough has not quite lost its ancient mystic meaning, and we see no reason why 1900 years after the extinction of Druidism we should not set aside and forget the heathen origin of the custom, and

Winter Protection of Vines.

In our northern latitudes protection for bushes and vines is a necessity and amply repays for what trouble may be taken to insure bushes going through the cold winter successfully. This may be done with straw, leaves, hay, pine or cedar boughs, corn stalks or any thing of such description. Do not cover the bushes or beds until winter has fairly set in. If covered too early, they will be in danger of sweating and injury. Always see the material used for covering is perfectly dry and so placed as to admit of free air.

salute our cousins and other fair friends this Christmastide according to ancient usage and old fashioned custom, "Under the Mistletoe Bough."

The custom has been honored in the observance by a no less virtuous person than Mr. Pickwick himself. I have only hinted at some of the many legends of the mistletoe or golden bough, but will finish with a selection from Eliza Cook:

Under the Mistletoe, pearly and green,
Meet the kind lips of the young and the old;
Under the Mistletoe hearts may be seen,
Glowing as though they had never been cold;
Under the Mistletoe peace and good will
Mingle the spirits that long have been twain;
Leaves of the olive branch twine with it still,
While breathings of Hope fill the loud carol strain.
Yet why should this holy and festival mirth
In the reign of old Christmas-tide only be found?
Hang up Love's Mistletoe over the earth,
And let us kiss under it all the year round;
Hail it with joy in our yule-lighted mirth,
But let it not fade with the festival sound:
Hang up Love's Mistletoe over the earth
And let us kiss under it all the year round.

A Popular Florist.

One of the most popular florists in Toronto is Mr. E. F. Collins, the secretary of the Toronto Gardeners' and Florists' Association, who acted as secretary of the floral committee which had charge of the floral exhibits connected with the recent Provincial Fruit, Flower and Honey Show. The success of this feature of the exhibition is due, in a large measure, to the efforts of Mr. Collins.

THE CARE OF WINDOW PLANTS*

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

TO be successful with window plants one must really love them and not begrudge the time and attention they take. It is not usually those who exclaim the loudest, on seeing a display of plants and flowers, "Oh! how I love flowers!" who are the most successful in their culture.

The most successful window gardeners are those who take a quiet, observant pleasure in watching the gradual growth and development of the beautifully varied phases and features of plant life. Many persons only love flowers as decorative objects: oftentimes from a sense of vanity or frivolity. As a rule these people are not those who succeed best in the culture of plants and flowers. The true student of nature takes as great a pleasure in his plants when in a dormant or semi-dormant stage of comparatively uninteresting growth as when watching the flower buds develop into beautiful, richly colored flowers.

THE WINDOW.

For window plants in winter a window facing the south or southeast is preferable, especially for flowering plants, as this aspect gives a maximum of sunshine and avoids the cold west and northwest winds. Ferns, palms, and many foliage plants will succeed as well in a window facing the north or northeast as in a south window, but flowering plants will do better in a sunny position.

Avoid draughts of cold air on plants, as they are injurious, checking the growth, and often inducing attacks of mildew. If outside air is given plants in winter, and sometimes this is beneficial, give them ventilation

*Extract from an address delivered at the provincial, horticultural convention held in Toronto, November 15 and 16, in connection with The Provincial Fruit, Flower and Honey Show.

on sunny, calm. and not excessively cold days. Draw the top sash of the window down an inch or two, or, if possible, induce ventilation from an adjoining room. Plants like fresh air but object strongly to being in a cold draught. A thick paper window blind, or sheets of newspaper between the window and plants, will protect them on extra cold nights.

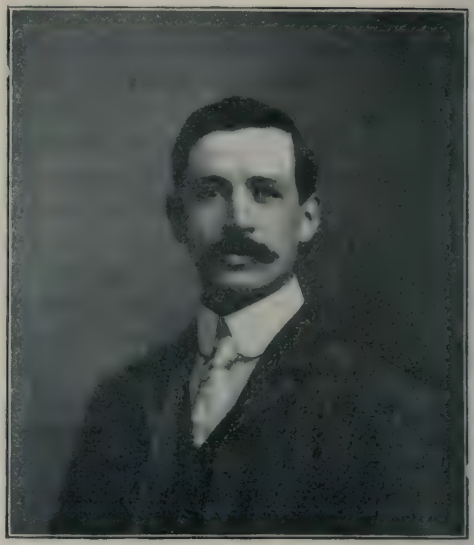
POTTING SOIL.

Every one who attempts to grow window plants should have a small pile of prepared potting soil made from well rotted sod and thoroughly rotted stable or cow manure. The too common practice of using earth from the garden, or black soil from the bush, is oftentimes the cause of failure and disappointment in plant growing. The earth from the garden is too often lacking in fertility and, what is of still more importance, is too often deficient in the fibry matter found in partially rotted sod. Good potting soil may be obtained from some tough sod from an old, well fed down, pasture field where the soil is of a loamy nature. This sod, before being used, should be stacked in the open, mixed with well rotted stable manure or cow manure and the pile be left to rot. Where this trouble is too great to be undertaken prepared potting soil may be obtained from a florist.

POTS AND POTTING.

Use unglazed plain flower pots for growing plants. For potting rooted cuttings or slips use small pots, a two and a half or three-inch pot being usually quite large enough for potting rooted slips. When the plants are fairly well rooted repot into a pot two sizes, or two inches larger. A change into a pot two sizes larger is usually sufficient. Over-potting, or repotting the plant into a pot four or five times larger, is a too common mistake with amateur flower growers, often resulting fatally to the plant.

Use a mixture of one part of fine sharp sand, and three parts of the potting soil for rooted cuttings. For re-potting larger plants one part of sand to six or seven parts of potting soil is about the proper proportion of most window plants. Even if common garden soil is used for potting soil, the sand will be beneficial. In potting or repotting plants be sure that the hole in the bottom of the pot is open to allow of free drainage. About half an inch of coarse gravel, or coal cinders, etc., should be placed in the bottom of four or five inch pots to secure good drainage. In six or seven-inch pots, an inch in depth of this drainage would not be too much. Very small pots seldom require drainage.



W. G. ROOK.

Much of the success of the Provincial Fruit, Flower and Honey Show was due to the excellent work of the printing and advertising committee, of which Mr. W. G. Rook, of Toronto, was the chairman. As a vice-president of the Toronto Horticultural Society and a florist, Mr. Rook is in close touch with horticultural matters.

WATERING, SPRAYING, FERTILIZERS.

All freshly potted plants should be watered once as soon as potted. Give sufficient water to moisten all the soil in the pot. Do not give more water until the soil shows signs of dryness. If the plant wilts a little, do not saturate the soil with water, but remove the plant to a shaded position for a few days. Too much water often kills

newly potted plants, as there is no root action to absorb the excess of moisture.

Water growing plants when they require it. To find out when growing plants need water, watch the surface of the soil closely. When the rough uneven portions of the surface of the soil begin to have a light, greyish color, or when the top of the soil will crumble between the thumb and finger, the plant requires water. Give sufficient water to moisten the soil to the bottom. Plants should only be watered when the soil requires the moisture, which condition can only be learned by experience and observation. The dairy or calendar is of no use as a guide in the watering of plants. One rule should always be borne in mind, viz: That sufficient water should always be given growing plants to moisten, not saturate, all the soil in the pot. Light sprinklings of water that only penetrate through an inch or so of the soil are useless.

In winter use tepid or rain water at a temperature of about 65 degrees. In spite of assertions to the contrary I am satisfied that water of a temperature at or near freezing point is injurious to plant life in greenhouses, to say nothing of window plants.

GROWING RHUBARB IN THE CELLAR IN WINTER

PROF. H. L. HUTT, ONT AGRI. COLLEGE, GUELPH.

MOST farmers who have a garden usually have a good supply of the old fashioned pie plant or rhubarb. This vigorous growing plant provides a wholesome substitute for fruit early in the spring before strawberries come in. It is not generally known, however, that it can be made to produce its crop in an ordinary cellar during the winter, when it would probably be more appreciated than when grown in the usual way in the garden in the spring.

The rhubarb plant makes its most vigorous growth under natural conditions early in the spring, when its large leaves store up in the thick fleshy roots a large amount of nutriment for the protection of seed during the summer and growth early next season. To get the best roots for winter forcing it is well to allow the plants to make their full growth with little or no cropping of the leaves the previous season, and above all not to allow them to exhaust themselves by throwing up seed stalks. The more liberally the plants are manured and the better they are cultivated, the stronger the roots become and the better the crop they will give when forced in the cellar.

In preparing the roots for the cellar, they should be dug up late in the fall, just before the ground freezes hard. They should then be left where they will be exposed to severe freezing for three or four weeks. If placed under cover in an open shed, or where they will not be buried in snow, it will be all the easier to get at them when it is time to take them to the cellar. About Christmas time they may be put in the cellar and should be banked with earth to keep the roots moist. Care should be taken that the plants are set right side up, as at that season it is sometimes difficult to tell which side of the ball of earth the crowns are on. In the course of a few days the roots will thaw out, and usually enough moisture is thus accumulated to keep them fresh for some time. They should be watched, however, as they may need watering once or twice during the winter to keep the soil moist.

The warmer the cellar, the more quickly growth will start, but for the best results a rather low temperature, about the same as that in which potatoes are kept, is best. In a partially lighted cellar the leaf blades will expand very little, and all the strength of the roots will go to the development of the stalks. If the cellar is light, it is well to

darken the part where the plants are kept. If the roots are strong and vigorous, stalks one and a half to two feet in length and two inches in diameter will be produced with little or no expansion of the leaf blade at the top.

When grown thus in the dark, none of the green coloring matter of the leaf develops, and the stalks are bleached to a pinky white. When cooked and made into sauce and pies, they turn a beautiful pink color and are much finer in appearance and flavor than stalks which are grown in the ordinary way in the garden. Cropping may begin as soon as the stalks are well developed, and may be continued for several weeks, until the roots have exhausted themselves, after which they should be thrown out, as they are of little use for growing again.

Growing Onions from Seed or Sets

PROF. H. L. HUTT, ONT. AGRI. COLLEGE, GUELPH.

CONSIDERABLE attention has been given at the college to the growing of onions. The results obtained indicate that it is more profitable to grow onions from seed. The ground in which they are grown should be thoroughly cleared of weeds by a hoed crop grown on the ground the previous year. It should be worked as fine as possible in the spring and rolled firm to make a solid seed bed, leaving a half inch or so of the surface soil as fine as possible.

Seed should be sown with the drill, carefully regulated to give a good distribution of seed without sowing too much. If just the right quantity of seed is used the bulbs will be thick enough to form a good size without thinning.

Onion bulbs naturally form on top of the ground and will stand considerable crowding without much injury; in fact, unless extra large bulbs are required, which are not always the most desirable, they are better to grow so thickly that they will form in large bunches. The cultivation during the season should be shallow, and the cultivator teeth should be set so as not to throw any earth over the bulbs.

As soon as the tops begin to die down in the fall, showing that the bulbs are well matured, the bulbs should be pulled and left lying on the ground until they are thoroughly dried. When well dried, the tops should be twisted off and the bulbs prepared for market or storage. The best way to store them is in shallow layers on slatted racks in a dry, cool room.

Two Varieties of Gooseberries

STANLEY SPILLET, NANTYR, ONT.

THE Red Jacket gooseberry, though not as large as the Whitesmith, is, when ripe or nearly ripe, the most beautiful gooseberry in my collection. In my opinion, this gooseberry has no peer. After ten years' experience with this variety, I am digging out everything else, except for experimental purposes, and putting in Red Jacket.

Pearl and Red Jacket gooseberries in my opinion are superior to any of the foreign varieties or their seedlings for the following reasons: They are more vigorous and grow lots of wood for renewing and to stand winters, they are not affected by mildew fungous, they are great croppers, they are thin skinned and can, therefore, be allowed to get ripe, and the skin is not disagreeable when cooked. They are, also, large enough for all practical purposes and of the very best quality. The Pearl will be liked by those who prefer a sweet fruit. The Red Jacket is quite tart when ripe, and larger, and looks better in the baskets than the green berry.

Picking Pears

SOME interesting information regarding his method of picking pears was given The Horticulturist recently by Mr. E. C. Beman, of Newcastle, who has an orchard of 2,000 pear trees. "I generally start picking Clapp's Favorite," said Mr. Beman, "from the 15th to the 20th of August, and the Bartlett about the end of the month.

"My practice is to obtain as good pickers as possible, and not too many of them. Picking is started early that they may get through in good time. Fruit keeps better when picked before it is too ripe. Clapp's Favorite must be picked as soon as it is full grown or even a little before, as otherwise they start to rot at the core. Bartlett pears also require to be picked as soon, or a little before, they are full grown, as the quality of the pears is better than if they were allowed to mature on the trees.

"Care is taken to see that the early varieties of pears are out of the road before the late varieties are ready to pick. It pays to obtain good pickers, as they use greater care in handling the pears, which, owing to their tender nature, require careful treatment. I find that I can make a little more on all kinds of fruit by shipping direct to commission men than by selling my fruit from the trees. Small growers, of course, can hardly do this. Many growers apparently do not understand how to pack, as they do not use sufficient care."

Top Grafting.—We have a number of King Baldwins and other trees that have been top-grafted from 15 to 30 years, and we have them on the original stock in the same orchard. I am sure there is double the amount on the top-grafted. I have counted six or seven Kings on a branch no thicker than a pipe stem. They have to be propped up. I think the government should do work of this kind. I consider top-grafting the greatest need in this section.—(J. I. Graham, Vandeleur, Ont.

Questions About Apples

Are Wismer's dessert apple, the Rivers Early and Graham's Royal Jubilee as good as recommended in the nursery catalogues? Are they good keepers and shippers? Are they marketable? Are they good dessert apples? Are the trees hardy, and where can I obtain one or two year old trees from nurseries who do not employ agents?—(J. B. Bruce, Kanagan Landing, B. C.

It is surprising how fond we all are of trying things new and untried, even although we know full well that nine-tenths of all new things put out before a gullible public prove worthless and pass out of sight after a few years. Were it not for this failing in us many a business would come to grief.

These fruits have not yet been introduced long enough for us to know their faults, or to answer your questions. We have eaten the Wismer apple and found it a very agreeable dessert apple, and of fair size. So far these apples have not been tested; they are comparatively new, and may or may not bear out the laudations of their introducers.

Self Sterility in Cherries.—I do not know that any systematic investigation has been made regarding the sterility of cherry blossoms. Here is room for important investigation which we would like to have followed up this year had it not been that in most of the varieties the fruit buds were more or less destroyed by winter killing. I have seen it stated somewhere that Belle de Choisy and Reine Hortense are self-sterile varieties, but I cannot say for certain if this is always the case, as varieties self-sterile in some sections often prove self-fertile in others. On general principles, however, it is well to avoid planting large plots of any one variety, as better results are obtained even with self-fertile varieties of cross fertilization.—(R. Cameron, Niagara Falls South.

I only use barnyard manure in my orchard. I grow no crops in the orchard, but cultivate and keep down weeds.—(A. Shaw, Walkerton, Ont.

INTERESTING FRUIT EXHIBITS

(Cuntinued from page 516)

given in regard to the Fruit Marks Act. This work was in charge of Mr. P. J. Carey, of Toronto, and Mr. A. Gifford, of Meaford, Dominion fruit inspectors, assisted by two expert packers, Messrs. R. Wilson and G. H. Boone, of Thornbury. The Fruit Division also made an exhibit of fruit from the different provinces, including 19 plates from Nova Scotia, 14 from Prince Edward Island, 27 from Quebec and 7 plates and 2 pyramids from British Columbia. The Quebec exhibit showed the class of apples that can be grown in the colder sections of Ontario, Quebec and the Northwest Territories. These included some Russian varieties and seedlings that have been tested.

The Nova Scotia fruit closely resembled that of Ontario and included such varieties as the Stark, Greening, Baldwin and Gravenstein. The fruit from Prince Edward Island was not as large as that from the other provinces, but was fairly well colored and included some Wealthy, Baxter, Ontario, Fall Water and Baldwin apples, all of which showed good keeping qualities. Some of the finest commercial Spys in the rink were included in the British Columbia exhibit. They were of fair size and very even in quality and color. The other varieties, such as Ontario, Stark, Canada Red and Spitzenberg, were hardly up to the standard of the Ontario fruit.

AN EXCELLENT EXHIBIT.

A small exhibit, but one of excellent quality, was made by Mr. Richard Veale, of Mount Brydges, who showed five plates of Kings, Russets, Baldwins, Greenings and Spys. These apples were all of large size and excellent quality, the Spys and Russets being particularly fine.

A large table was occupied with an exhibit of fruit from the orchards of Morris & Wellington, of the Fonthill Nurseries. This exhibit included some excellent fruit.

One of the best exhibits at the show was that made by the Chatham Fruit Growers' Association. This exhibit attracted general attention and proved a splendid advertisement for that association, as the fruit was all of excellent quality, it was neatly packed and showed to excellent advantage. The exhibit included fruit in boxes and barrels as well as on plates.

THE FRUIT GROWERS' ENEMIES.

A most valuable section, from an educational standpoint, was that occupied by a display from the Ontario Agricultural College. A large number of the most common insects which plague fruit and vegetable growers were shown in bottles. These included the peach borer, the celery caterpiller, spruce gall louse, round headed borer, cabbage borer, canker worm, squash bug, and many others. Branches of trees and leaves, showing how these various insects attack the trees and the damage they do, were shown. These included leaves attacked by shot hole fungus, currant leaf spot, asparagus rust and others, as well as exhibits showing the apple scab, bitter rot, plum rot, sun scald, San Jose scale, etc.

Printed slips of paper describing the various pests and how they can best be prevented and remedied were attached to the various exhibits. There was also an exhibit of a section of a tree showing how trees can be protected from mice, as well as branches of trees showing how grafting is done. One of the best features of the college display was two cases of waxed fruits which were wonderfully natural. The college received a great deal of praise for making such an excellent and instructive exhibit.

COMMERCIAL EXHIBITS.

A number of well known firms made exhibits of fruit boxes, orchard machinery, etc. These exhibits were among the most instructive of the exhibition although the number was not as large as had been hoped

for. Next year it is probable this class of exhibits will be much larger. Two extremely interesting exhibits were made by the Robert Simpson Co. and the Adams Furniture Co., of Toronto. These took the form of model dining rooms and showed tables set ready for a meal and loaded with fruit. The rooms were richly furnished and proved most entertaining.

The Biggs Fruit & Produce Co., Limited, of Burlington, although a new concern, made a very creditable display in the fruit department, capturing 13 prizes in all. The manager, Mr. A. C. Biggs, was extremely well pleased with the exhibition, which he said gave him an excellent opportunity to meet the users of fruit packages and to give practical demonstrations of his firm's specialties. These are a fruit box for the export and western trade, a crate for storage purposes, and a box press which practical fruit growers who examined it at the show unanimously agreed to be the best they had seen. The special advantages of the Biggs box for the trade include its simple construction, the strength and protection it affords, and the economy it makes possible in the packing and material. Some of its other strong points are the ease with which it can be handled without injury to the fruit, its adaptability to different sizes of fruit, which always ensures a tight package, and its cost.

The fruit press shown by Mr. Biggs had an excellent feature in that it was adjustable to any ordinary sized fruit box, while it was easily operated and strong. These good qualities were appreciated by the fruit growers who examined it. The ventilated package for storage, shown by the Biggs company also seemed to be all that could be desired for the profitable keeping of fruit.

THE LITTLE GIANT SPRAYER.

Only two spraying outfits were shown including that of the Spramotor Company, of London, and the Little Giant Sprayer shown by the Perkins & Payne Manufacturing Company, of Port Dover. This latter machine is cheap and is simply and easily operated. The machine at the show attracted a great deal of attention. It was constructed with a tank of 100 gallons capacity, although a larger or smaller sized tank can be used when desired. The tank was mounted on two wheels, although four wheels can be used if necessary. The spray was generated from the wheel, the sprayer having a large sprocket wheel 30 inches in diameter and a smaller one 12 inches in diameter. Two lines of hose were said to be enough to spray the largest tree, with one man on the ground spraying the lower branches and a man on the tank spraying the upper parts. The operation of this mashine at the show demonstrated that it is possible to spray the largest apple tree after the machine stops which proved that the power is well maintained. The general impression seemed to be that owing to its cheapness and effectiveness this sprayer will become very popular in the near future.

GREENHOUSE CONSTRUCTION.

The only exhibit of a commercial nature made in the floral section was that of the King Construction Company, of Toronto, which showed the framework of a greenhouse, with improved ventilating shutter and shutter opening devices, showing also their skeleton purlin or rafter central support in position. They also exhibited some improvements in their iron gutters, and means for securing the sash bars thereto.

Though this exhibit was placed in the floral building it was of interest to fruit growers. Some growers are already successfully raising not only vegetables of various kinds but also fruit such as strawberries under glass in mid-winter and are increasing their business by the erection of improved structures, giving as much care and consideration to sunlight and permanency as the florists themselves.

In reference to the prospects of this class

An Exhibition of Commercial Fruit Packages.

Fruit growers who attended the Provincial Fruit, Flower and Honey Show evinced great interest in the commercial exhibits, more particularly fruit packages and spraying machinery. This feature of the exhibition will be largely developed next year. The illustration shows the exhibit of fruit packages, etc., made by the Meyer-Thomas Co., of Montreal and Granby, Quebec, mentioned in this issue.

of horticulture growers at the show stated it is being discovered that the same people who can afford to spend their money freely in floral decorations can afford also to place on their table fruit or vegetables out of season, provided they can be procured, rather than be satisfied with the canned article. This exhibit had some interesting features for the fruit growers from Essex county who are raising vegetables for the early markets.

THE AVERILL KNOCK DOWN AND FOLDING PACKAGES.

One of the most interesting exhibits of fruit packages was that of The Meyer-Thomas Co., of Montreal and Granby, Que., which made a large exhibit as shown by the illustration. This firm has recently acquired the Canadian manufacturing rights for the Averill patents and, while they are only manufacturing these packages in Quebec, will soon establish a large plant for their manufacture in Ontario.

The Averill Patents cover a large line of both knock down and folding fruit packages, berry crates, egg cases and shipping crates and boxes for various manufactured commodities.

The Averill packages are manufactured in half-barrel, bushel and half-bushel sizes, ventilated for early fruit shipments and tight for late shipments, cold storage and

export, and in either the oblong or cube form. The half-barrel and the one bushel sizes are specially recommended for the apple trade. They are strong, light, easily set up, packed, sealed and handled; opened again and resealed in a moment with as simple a tool as a hatchet, and when sealed may be placed any side up and opened top or bottom and refilled until worn out. Demonstrations on these points were given.

A simple fruit evaporator, with many commendable features, was shown by Mr. Geo. McKay, of Kilsythe. This evaporator was hung over one of the furnaces in the fruit rink. These evaporators can be used over kitchen stoves without interfering with any of the regular cooking operations. According to Mr. McKay he is able to handle one-half bushel of apples per day by means of his evaporator. Some evaporated apples Mr. McKay had with him were of excellent quality and indicated that the evaporator was a good one. One of its best features is that the heat can be regulated by raising or lowering the evaporator while the cost of the evaporator is trifling.

CO-OPERATION AMONG ONTARIO FRUIT GROWERS

(Continued from page 512.)

At this point Mr. D. Johnson, of Forest, president of the Forest Fruit Growers and Forwarding Association, was called to the front and asked to explain the methods that have been followed by his association.

"Our association," said Mr. Johnson, "was only formed last spring. Its organization was the result of two interesting meetings held in our section by Mr. Sherrington. My father and I had been shipping apples to Great Britain for years and had won a name for our fruit. We thought, at first, that cooperation might be desirable for small growers, but that it was not necessary for large growers like ourselves. At my request Mr. Sherrington visited our neighborhood and held two very successful meetings. After hearing him 12 of us finally agreed to ship together and we sent a salesman to the Northwest to introduce our fruit. We thought there were a number of other growers in the section who would like to join us and we invited them to do so but insisted that they must submit to our rules, as we had too much at stake to care to risk loss through any selfish action on the part of a few growers.

"When it was first decided to cooperate each man was allowed to pack his own apples and to send his fruit to a central packing house but we soon found that this would not do. The growers all had their own ideas as to how their fruit should be packed, so it was finally decided to establish two central packing places, one on my own farm and one at Forest, which was done. Many growers were afraid their fruit would be bruised by being handled in this way and refused to send their apples to these packing houses. A number, however, sent their fruit, and it was not long before more fruit was received than we could well attend to. We followed Mr. Sherrington's plan of placing hay in the bottom of the wagons and found it worked very satisfactorily."

Question: "What did you realize for your fruit?"

Mr. Johnson: "At first we were offered $2.75 per barrel for No. 1 F. O. B. These prices, however, were soon forced down through competition. The average price realized during the season was $1.90 F. O. B. for No. 1 fruit and $1.55 for No. 2. As high as $2.25 was paid for some. We have shipped large quantities and have not received a single complaint from the buyers in regard to the quality of our fruit."

Question: "What did other growers in your district, who did not belong to your association, obtain for their fruit?"

(To be continued in the January issue.)

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

H. Bronson Cowan, Editor and Business Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance, entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

SEVENTEEN YEARS' FAITHFUL SERVICE.

At the recent annual convention of the Ontario Fruit Growers' Association Mr. Linus Woolverton, B.A., of Grimsby, took advantage of the occasion to tender the directors his formal resignation as editor of The Canadian Horticulturist. For years Mr. Woolverton has been undertaking work beyond the powers of the ordinary man. Although the owner of one of the finest fruit farms in Canada he has not only found or rather made time, during the past seventeen years, to act as editor of The Horticulturist but has, for a considerable portion of this time, acted as secretary of the Ontario Fruit Growers' Association, secretary of the Board of Fruit Experiment Stations and worked on a valuable description he is preparing of the fruits of Ontario.

Realizing that this work was too great for one man Mr. Woolverton, a few years ago, asked to be released of his duties as secretary of the Fruit Growers' Association and last month asked for a further lightening of his responsibilities. In accepting Mr. Woolverton's resignation the directors of the association, one and all, paid tribute to the great value of the services he has rendered. It was pointed out that when Mr. Woolverton accepted the secretaryship of the Fruit Growers' Association and the editorship of The Horticulturist both the Association and The Horticulturist were in a critical condition. Through his active efforts the association and The Horticulturist have since become known throughout the Dominion. An expression of the value in which his services have always been held was unanimously tendered Mr. Woolverton. Special attention will be devoted by Mr. Woolverton in the future to his duties as superintendent of the fruit experiment stations and to completing his description of the Fruits of Ontario. The editorship of The Horticulturist has been assumed by the associate editor, Mr. H. B. Cowan.

IT WAS A SUCCESS.

The First Provincial Fruit, Flower and Honey Show was a decided success. The gain to the horticultural interests of Ontario will be immense. There is an impression in the minds of the general public that anything pertaining to horticulture is of but slight importance. The magnificent display of fruit, flowers and honey, at the recent show, did much to dispel this illusion.

The success of the first venture warrants a determined effort being put forth to make the show an annual affair and to extend its usefulness and scope. Too much credit cannot be given the officers of the show and the various organizations interested. The Ontario Department or Agriculture, the Ontario Fruit Growers and Bee Keepers' Associations, the Toronto Horticultural and Electoral District Societies and the Toronto Gardeners' and Florists' Association are all deserving of the warmest praise for their active assistance and cooperation. The fact that the representatives of all these bodies were able to work together harmoniously shows them to be broad minded men. It is no wonder the exhibition was a success.

A NARROW MINDED POLICY.

The Canadian manufacturers of orchard and garden implements are deserving of the severest censure for the stand they took in regard to the recent provincial horticultural exhibition. Although earnestly urged, and in spite of the fact that liberal inducements were offered, they absolutely refused to make exhibits at the show.

It was felt by the management that an exhibit of implements and tools for orchard and garden culture, showing the latest improvements that have been made, would be of great educational value to the fruit growers and gardeners who attended the exhibition. Although this object was pointed out the Canadian manufacturers refused to give their assistance. If the manufacturers dream they have entrenched themselves in a position where they are independent of the fruit growers and florists it is time they should be rudely awakened. This point should be borne in mind when preparations are being made for the next exhibition.

The delegates to the provincial horticultural convention acted wisely last month when they appointed a committee to suggest changes in the Agricultural and Arts Act and to consider the advisability of forming a provincial horticul-

tural association. There is a big work for this committee to do and the results of its deliberations will be awaited with interest. The members of the committee, fortunately, have had wide experience in horticultural work.

This month The Horticulturist makes its blushing appearance in a new cover. Many improvements are planned for the near future and will be put into effect as soon as fruit growers and florists subscribe for the magazine in greater numbers. Tell your friends about The Horticulturist and induce them to become regular readers. A larger and better paper will result.

The Nova Scotia and Prince Edward Island Fruit Growers' Associations will this month hold their annual conventions. That they will both be most successful is the earnest wish of their brother fruit growers in the other provinces of the Dominion.

Horticultural societies when deciding this month what papers they will subscribe for during the coming year should bear in mind that The Canadian Horticulturist is the only paper that is "Made in Canada." By subscribing for The Horticulturist they will assist a paper that is endeavoring to assist them.

An evidence of the excellent service rendered by the railway companies was furnished in connection with the recent horticultural exhibition. Exhibits shipped to the show the week before it opened arrived the week after it was over.

A Pointer for Ontario Growers

W. J. BRANDRITH, SEC.-TREAS. BRITISH COLUMBIA FRUIT GROWERS' ASSOCIATION.

British Columbia fruit growers felt gratified last winter when the Ontario Fruit Growers' Association saw fit to endorse the same sized box we had adopted in 1900. It is one in which any sized apple can be packed, but growers need to be taught to do the work.

We had three expert packers in as many years, go all over British Columbia and give practical demonstrations in packing fruit. It costs the British Columbia Association about $800 each year for only two months' work, but we consider the money well spent. Ontario fruit growers will have to do something of that kind if they wish to succeed.

We have adopted a standard size for a pear box, as well as for apples, viz., 8½ x 11¾ x 18½ inside measurements. This is the result of very extensive experiments with different sized boxes.

I have read The Horticulturist for the last 25 or 30 years and consider it a first-class journal. Would not want to be without it.—(Geo. Smith, Manilla, Ont.

Will Hold Another Show

A meeting of the general committee of the Provincial Fruit, Flower and Honey Show was held November 28 to wind up the business connected with the recent exhibition. Those in attendance were the chairman, Mr. R. J. Score, and Messrs. Edward Tyrrell, H. G. Rook, H. R. Frankland, P. W. Hodgetts, Bernard Saunders, J. H. Dunlop, Herman Simmers, Thomas Manton, E. F. Collins, and the secretary H. B. Cowan.

The financial statements presented showed that the estimate of expenses connected with the show had not been exceeded. All expenses of management had been paid in full, including the prize lists for the fruit growers and bee keepers and that there was $800 on hand with which to pay the floral prize list amounting to $1,150. It was announced that a special donation may be received which will make it possible to pay prize list in full. The representatives of the various organizations that assisted with the show were unanimously in favor of holding another joint exhibition next year. The opinion was freely expressed that for a first attempt the recent exhibition had been a remarkable success and that it will be possible to add many new features next year.

Fruit Growers Who Won Prizes

The following is a list of the prize winning exhibitors of fruit at the recent Provincial Fruit, Flower and Honey Show :

Apples, commercial division, export varieties, Barrels ready for shipment. Baldwin, 1, Chatham Fruit Growers' Association; 2, Harry Dempsey, Rednerville; 3, Biggs Fruit Co., Burlington.

Ben Davis, 1, Chatham F. G. A.; 2, Harry Dempsey; 3, Frank Dempsey, Albany.

Greening, 1, Chatham F. G. A.

King, 1, Biggs Fruit Co.; 2, Elmer Lick, Oshawa; 3, H. J. Scripture, Brighton.

Russet, 1, Harry Dempsey; 2, Frank Dempsey; 3, Chatham F. G. A.

Spy, 1, A. E. Sherrington, Walkerton; 2, Biggs Fruit Co.; 3, D. T. Elderkin, Toronto.

BOXES READY FOR SHIPMENT.

Baldwin, 1, Elmer Lick; 2, Robert Thompson, St. Catharines; 3, W. H. Bunting, St. Catharines.

Greening, 1, Chatham F. G. A.; 2, W. H. Bunting; 3, Ernest Woolverton, Grimsby.

King, 1, Chatham F. G. A.; 2, Biggs Fruit Co.; 3, Elmer Lick.

Russet, 1, Harry Dempsey; 2, Elmer Lick; 3, Chatham F. G. A.

Spy, 1, C. W. Challand, Marburg; 2, Biggs Fruit Co.; 3, Robert Thompson.

BOXES (FRUIT WRAPPED).

Snow, 1, Chatham F. G. A.; 2, A. D. Harkness, Irena; 3, Harold Jones, Maitland.

King, 1, Chatham F. G. A.; 2, Elmer Lick ; 3, Biggs Fruit Co.

McIntosh, 1, A. D. Harkness; 2, Elmer Lick.

Spy, 1, Biggs Fruit Co.; 2, A. E. Sherrington; 3, Elmer Lick.

(Continued on page 544.)

CONDITIONS SURROUNDING CANADIAN CANNED GOODS*

W. P. GAMBLE, ONT. AGRI. COLLEGE, GUELPH.

At the suggestion of the Hon. John Dryden and President Creelman, of the Agricultural College, I visited the Old Country last summer and made a study of the standing of Canadian canned goods on the English market. My attention was directed chiefly to comparisons between the different Canadian canned pears, peaches, apricots, raspberries, corn, tomatoes, and similar food stuffs of United States manufacture.

A number of the British wholesale houses did not handle any Canadian canned goods. In other houses, where our canned goods are to be found, the general complaint was that our peaches, pears and apricots are pulpy in appearance. When our cans were opened and compared with those sent from the United States, the difference was very marked. The fruit from the other side of the line retained its perfect form and was certainly more attractive than ours, half of which was in pulp and had more of the appearance of boiled turnips than of fruit.

The general impression among the merchants was that our manufacturers purchased the fruit after it had become too ripe, or else that a very inferior variety of fruit, such as windfalls, etc., was used. Notwithstanding this fact, the flavor of our canned peaches was excellent, in fact much superior to that of the California fruit. The general opinion, however, was that Canadian manufacturers must look more closely after the raw material if we are to have a leading place in this very important industry.

One very fine display of canned raspberries, drawn to my attention, was put up in glass sealers, which were neatly labelled. This particular kind of fruit presented a very attractive appearance, and sold readily at good prices. In speaking of this fruit, Mr. Robinson, of the firm of Hanson, Son & Barter, said: "We cannot get enough of your canned raspberries to supply the demand. We have had to cancel a large number of orders for this brand this season. Our customers say the fruit is excellent. If more of your fruit could be put up in glass, the prices paid would certainly be much higher than they are."

There is a steadily growing demand in England for tomatoes and corn. Some few years ago there was a decided prejudice against canned goods of any kind, the reason being that a few cases of poisoning supposedly resulted from eating such foods. This prejudice is gradually dying out. There is, however, a complaint that our manufacturers are not sustaining their record in the matter of quality.

One defect pointed out was a blackening of the corn at the top of the can. This was probably caused by the soldering iron scorching the corn during the process of sealing the cans. In contrast with the black surface exposed, when a can of Canadian corn was opened, several merchants showed me how the United States manufacturers over come this difficulty. They place a clean piece of parchment paper over the corn and in this way are able to obviate any blackening of the canned goods.

One dealer told me that he did not so much ofject to a little of the corn being blackened, but it gave the customers a bad impression of the goods. The customers often mistake this blackening of corn for foreign matter and object to it strongly. A little care in sealing the cans, and a small piece of parchment paper placed underneath the lid prevents any such false impression.

There is a limited demand for Canadian canned peas on the English market. This is mainly for the reason that most of our peas are white. Most of the peas sold in England come from France, and are colored by the use of a dilute solution of copper sulphate. The canned pea trade in Great Britain is in an unsatisfactory state because of a law prohibiting the use of copper sulphate in any process of manufacture.

The merchants say that it is absolutely impossible for them to sell canned peas unless they are colored and it is practically impossible for them to obtain sufficient peas to supply the demand of their customers unless they are permitted to sell peas which have been colored by copper sulphate solution. Several merchants have been fined for selling such goods and a number of cases are now before the courts pending the decision as to whether or not a small percentage of copper sulphate may be used in the process of manufacture of this particular article of food.. There is an excellent market for canned goods in England, and it is possible for Canadian manufacturers to develop a very profitable business along this line. In orner to achieve the highest degree of success we must, however, pay special attention to the following points: Our goods must be put up in the most attractive style; the cans must be neatly made and the labels must be placed properly on the cans (appearance counts for a great deal in England); the goods exported must be of the very best quality if we are to compete successfully with our American neighbors, and the goods should be packed so as to prevent injury to the cans. A final point, which of course is demanded in all lines of business, is that all orders should be promptly filled.

Just a word to the manufacturers regarding the sale of their merchandise: I have already stated that there is a great future in England for Canadian canned goods. Let me repeat the assertion, but let me add that regularity in quality is, however, essential to the establish ment of a mark or brand of canned goods. It is self evident that a buyer of a lot of goods cannot open every parcel and, therefore, if a brand is to be established in Great Britain it is essential the buyer's confidence should be obtained, which necessarily takes time. The most economical method of procedure in order to obtain such confidence is for the packer to send along a few sample cases, containing a dozen

* A paper read at the convention of the Ontario Fruit Growers' Asaociation held in Toronto, November 17-18, in connection with the Provincial Fruit, Flower and Honey Show.

tins or so of each variety and grade and have these reported on by some reliable English house as to suitability and value. In this way it is possible to obtain bulk orders for tins. It must be remembered, however, that all canned goods sent to Great Britain are subject to examination on arrival for blown, burst or pierced goods, and, therefore, the manufacturer should be extremely careful regarding the quality of the goods exported.

HORTICULTURAL SOCIETIES WANT THE ACT CHANGED

The representatives of the horticultural societies of Ontario are not satisfied with the Agricultural and Arts Act. They would like to see the act so changed that horticultural societies will be placed on a footing of their own, separate and distinct from agricultural societies.

This was shown at the convention of delegates from the provincial horticultural societies held in Toronto November 15-16 in connection with the Provincial Fruit, Flower and Honey Show when a deputation was appointed to wait on the Hon. John Dryden, Minister of Agriculture, to draw attention to the necessity for a change in the act.

H. R. FRANKLAND.

The first vice-president of the Toronto Horticultural Society, Mr. H. R. Frankland, presided at the session of the recent horticultural convention held in Toronto, at which the advisability of having the agricultural and arts act changed was discussed. The convention appointed Mr. Frankland on the committee which waited on the Minister of Agriculture, and which is to meet to consider what changes should be made in the act. As a director of the Fruit, Flower and Honey Show, Mr. Frankland was a faithful, efficient worker, to whom much of the credit for the success of the exhibition is due.

The matter was brought up for consideration by the address of Mr. H. B. Cowan, of Toronto, the provincial superintendent of agricultural and horticultural societies, who spoke on "The Agricultural and Arts Act, How it Affects Horticultural Societies." In his remarks Supt. Cowan showed that under the act grants are made to the agricultural and horticultural societies of the province according to hard and fast regulations which do not take into account the work the societies are doing. The grants made by the Department of Agriculture to societies amount each year to about $80,000. Supt. Cowan stated that if the agricultural societies were spending their funds to as good advantage as the horticultural societies are theirs there would be little need for a change in the act. The yearly grants to horticultural societies amount to about $6,000.

Three serious defects in the act were pointed out. One is that district societies, by the act, receive much larger grants than township societies, although there are a considerable number of township societies which hold better agricultural exhibitions than many district societies. A second defect is that some societies, which receive large grants, do not expend nearly as much for the cause of agriculture as other societies receiving much smaller grants. Many societies are doing almost more harm than good as they conduct horse races, which are strictly against the law; allow gambling devices to be operated on the fair grounds (which is also against the law) and in some cases even permit liquor to be sold.

A third defect lies in the fact that where a horticultural society is established its grant is deducted from the grants of the agricultural societies in that district. The result is that agricultural societies oppose the organization of horticultural societies in their districts. There are a number of sections in the province where horticultural societies are needed but where it has been found impossible to organize them on account of the opposition of the agricultural societies.

The suggestion was made, by Supt. Cowan, that the horticultural societies should form a provincial horticultural association similar to the Ontario Association of Fairs and Exhibitions which represents the agricultural societies. Such an association could hold an annual meeting for the discussion of horticultural matters, issue an annual report, arrange for the sending of speakers to the meetings of local societies and in other ways increase the enthusiasm of horticultural workers and add to the value of horticultural societies.

VIEWS OF THE DELEGATES.

An animated discussion took place on the conclusion of Supt. Cowan's remarks. The views expressed were in part as follows:

Mr. Gilchrist, Toronto Junction: "I think that Mr. Cowan's suggestion to form a provincial association is in the right direction. There is ample scope for such an organization. Many of our horticultural societies are not working on any definite plan and might do much better work. In many of the smaller towns and villages no horticultural societies exist. It is in such places that they are most needed. The

requirement of the act that the membership shall be at least 50 precludes their formation. Some change should be made in the act in this respect and horticultural societies should be made distinct from agricultural societies as regards their grant."

Alex. McNeill, Chief Fruit Division, Ottawa: "There is no doubt we are all agreed that the funds for agricultural society purposes are in many cases scandalously wasted, and something must be done if we are to avoid a great scandal in the administration of the agricultural affairs of this province. Instead of being schools of virtue, many of our fairs are schools of vice.

"I agree with Mr. Cowan that we need to make a very strong move in favor of better horticultural instruction. As to how that is to be brought about, we may perhaps differ. It seems to me that simply to form another society does not solve the problem. Horticulture is just as much the object of the Fruit Growers' Association as the growing of fruit. The trouble is that the horticulturists have not forced themselves on the attention of the public to the extent necessary to get their due share of interest and attention. I believe that the best way to secure the ends we have in view is to retain the present organization rather than to form another society, involving a new set of officers. Let us have a fruit section, a horticultural section, a forestry section, with the same set of officers, office expenses, etc. There is no reason why the one society should not cover all this work."

FAVORED AN ASSOCIATION.

Major H. J. Snelgrove, Cobourg: "I desire to express the satisfaction of our society at the very excellent service which our superintendent is rendering us in his oversight of our work. We have received new inspiration from him since he occupied the office. I am glad that a move is being made to establish a Provincial Horticultural Society which will form an alliance with the local horticultural societies. The act under which we work has been on the Statute book for 30 years and it is high time that it should be made to represent the present day requirements of horticultural societies. We are performing a work which is entirely distinct from the professional side of horticulture. The fruit growers look at the commercial side, and while they are indirectly serving the community, they are first and foremost serving themselves and filling their own pockets. We are working for the good of the public, for municipal betterment and for the beautifying of our homes and surroundings.

"There is one strong reason why the Act should be amended: The clause providing for the organization of horticultural societies stipulates that the money a society receives as a government grant shall be expended only on lectures, exhibitions and the distribution of plants, etc. This is altogether too narrow a limitation. It prevents a society from doing anything for municipal betterment—towards the improvement of the parks and public playgrounds of the towns.

"I should like to take issue with Mr. McNeill, who claims that we should retain the present organization. I had the honor to be a director of the Fruit Growers' Association and know something of its workings. While fully 80 per cent. of its members are members of horticultural societies, the fact remains that only one or two of its directors are interested in horticulture out of some 15 or 16 officers and directors. I am prepared to move that we proceed to organize a Provincial Horticultural Association."

J. W. BRENNAN.

The secretary of the Grimsby Horticultural Society was born in Wentworth county, and after a collegiate and business college education, embarked in the general store business with his father. Eight years ago they purchased a fine orchard and residence near the village of Grimsby. Last summer the secretary made a tour of the deciduous sections of California and devoted a great deal of time to studying the methods of growing and packing fruit practiced in that great fruit state and derived gratifying results from his trip. the Grimsby Horticultural Society is one of the most energetic in the province. Interesting meetings are held every year, often in the homes of the members, when excellent exhibits of fruit are frequently made and instructive discussions held. Last month the society appointed Mr. Brennan to act as delegate at the horticultural convention held in Toronto.

Mr. R. B. Whyte, Ottawa: "I agree with Mr. McNeill as to the undesirability of multiplying organizations. I have always thought that the horticultural element was fairly well represented on the directorate of the Fruit Growers' Association. They have always had four to six directors. I agree that horticultural societies should be entirely divorced from agricultural societies. They have very little in common, and I think it tends to prevent their formation in some districts, as Mr. Cowan pointed out. Our grants should be made independent of the agricultural societies and should be divided partly according to membership, but more in proportion to the work done.

"For the last three years the Fruit Growers' association has held separate meetings in the interest of horticulture. I think there might be a special committee appointed by the horticultural societies to look after that department and send delegates to the annual convention. I think that the department should pay the expense of one delegate from each hundred members. In that way you would get all the advantage of a separate organization."

Mr. Rutherford, Hamilton: "It appears to me that all that is necessary is for us to remain as we are and have the Act amended. If it is any object, let the horticultural societies have a meeting like this every year and exchange views. If there is any idea of forming such an association as has been suggested, I think that the better way to go about it would be to ap-

A WORD TO HORTICULTURAL SOCIETIES

Many improvements have been made in The Canadian Horticulturist during the past eight months. An earnest effort has been made to make the magazine of greater interest and value to members of horticultural societies. The space devoted to floral matters has been increased and a special department has been created for reports of the work being done by horticultural societies. During 1905 still further improvements will be made. About half the horticultural societies in Ontario subscribe for The Horticulturist. These societies report that they find The Horticulturist is of great value to them in their work.

There are a number of societies which do not subscribe for The Horticulturist but which take United States publications instead. The Horticulturist is the only horticultural paper published in Canada. Although the competition of the United States papers is keen an effort is being made to publish a horticultural paper that will be a credit to Canada. An earnest attempt is also being made to advance the interests of our horticultural societies. Will not the horticultural societies of Ontario, when planning their work for 1905, kindly bear The Horticulturist in mind and arrange to subscribe for the magazine for all their members. If there are any improvements you would like to see made write and let us know what they are. Do you not think The Horticulturist is a sufficiently good publication to be deserving of your support quite aside from the fact that it is purely Canadian.

A LOW SUBSCRIPTION RATE WILL BE GIVEN SOCIETIES.

point a committee of representative men to outline the duties and objects and to state in what way it would be superior to our present organiation."

Mr. McClew: "I have pleasure in seconding Mr. Snelgrove's motion that we form a horticultural association. While we have no ill-feeling towards agricultural societies or towards the Fruit Growers' Association, yet our objects are entirely different from either of them. We have no commercial interests. Our object is purely the advancement of the knowledge of plants for beautifying the homes. By forming a provincial association we should be in a much better position to help both the agriculturists and the fruit growers. There always seems to be a feeling of jealousy between them, that the one society is taking from the other, which should not be. I do not think that a provincial association would cost the province a great deal. I am pleased to see that The Canadian Horticulturist is improving as regards horticultural matters, and no doubt still more space will be devoted to them in the future."

W. L. Stevens, Orillia: "As to the formation of a provincial association, there is a good deal to be said on both sides. There is a great deal of opposition among horticulturists in different parts of the country to the Fruit Growers' Association."

J. G. Jackson, Port Hope: "I called a meeting of our directors recently and obtained their views on this matter. In the first place there seems to be some dissatisfaction existing in our membership in regard to the affiliation of the Horticultural Societies with the Fruit Growers' Association. They have thought for some time past that the fruit growers were getting the best end of the horn in The Horticulturist. I assume it was established for their special benefit. However, I frankly admit that it has improved very much recently in this respect."

A COMMITTEE APPOINTED.

After considerable discussion Major Snelgrove withdrew his motion and moved, instead, that a committee composed of Messrs. H. R. Frankland, R. B. Whyte, H. B. Cowan, J. G. Jackson, Alex. McNeill, D. McClew and the mover be appointed to consider the advisability of forming a provincial horticultural association and also the proposal to amend the Agricultural and Arts Act as it relates to horticultural societies, the committee to report as soon as possible.

An amendment was moved by Mr. McNeill that the Agricultural and Arts Act be so amended as to make horticultural societies independent of agricultural societies, that grants to societies be distributed in proportion to the work done and that a distinct horticultural committee be appointed to direct the executive of the Fruit Growers' Association in connection with horticultural matters. The amendment was put to the meeting and was lost after which the main motion was carried.

AN IMPORTANT RESOLUTION.

At the afternoon session of the convention Major Snelgrove, as chairman of the special committee, presented the following report which was carried unanimously:

"That your committee is of the opinion that the Agricultural and Arts act should be amended because it permits of an unjust distribution of the government grant and that it in many districts works to the disadvantage of horticultural societies. We would, therefor, recommend that this committee be deputed to wait on the Hon. John Dryden, Minister of Agriculture, to urge that the Agricultural and Arts Act be com-

pletely revised and that the horticultural societies be placed on a footing of their own, separate and distinct in every way from township and district agricultural societies. We feel that such a step will greatly increase the usefulness of our horticultural societies, more especially along the line of civic improvement.

"In this connection we would further recommend that the superintendent of agricultural societies be instructed to arrange for a special meeting of this committee to consider a basis on which future grants to horticultural societies should be made, and that this committee have power to add to its numbers.

"We are further of the opinion that the formation of a Provincial Horticultural Association is desirable in the best interests of our horticultural societies, but as any change in the Agricultural and Arts Act may affect a move of this kind we would recommend that this matter be left over for further consideration by the special committee already named and that the committee be instructed to report definitely at the next annual meeting of the Ontario Fruit Growers' Association."

WAITED ON THE MINISTER.

On the following day all the members of the committee waited on the Hon. John Dryden, Minister of Agriculture, and, on behalf of the horticultural societies, laid the matter fully before him. The committee received a favorable reception, sympathy being expressed with the objects of the deputation. The minister approved of the proposal that the committee should meet to consider amendments to the act and announced that he would be pleased to consider any further suggestions the committee might decide to make.

Fruit Growers Who Won Prizes

(Continued from page 539)

DOMESTIC VARIETIES—BARRELS READY FOR SHIPMENT.

Wealthy, 1, Biggs Fruit Co.; 2, Harry Dempsey; 3, Frank Dempsey.

Blenheim, 1, A. E. Sherrington.

Gravenstein, 1, Elmer Lick.

Hubbardston, 1, Harry Dempsey.

Bellefleur, 1, Frank Dempsey.

Any other variety, 1, Harry Dempsey (Ontario); 2, A. M. Smith (Princess Louise).

BOXES READY FOR SHIPMENT.

Blenheim, 1, Biggs Fruit Co.; 2, A. E. Sherrington.

Gravenstein, 1, Elmer Lick.

Bellefleur, 1, W. H. Bunting; 2, G. B. McCalla, St. Catharines.

Any other variety, 1, Elmer Lick (Wagener); 2, Harry Dempsey (Hubbardston); 3, Frank Dempsey (Ontario).

AMATEUR DIVISION—DESSERT VARIETIES.

Any three varieties, 1, C. W. Challand; 2, A. D. Harkness; 3, Biggs Fruit Co.; 4, Harry Dempsey; 5, A. M. Smith.

Any seedling, 1, J. T. Graham, Vandeleur; 2, Robt. Thompson.

COOKING VARIETIES.

Any three varieties, 1, Biggs Fruit Co.; 2, W. H. Bunting; 3, J. L. Hilborn, Leamington; 4, Geo. Ott, Arkona; 5, G. W. Hodgetts, St. Catharines.

Any new varieties, 1, A. E. Sherrington (Bismarck); 2, A. M. Smith (Sutton Beauty).

Any seedling, 1, G. B. McCalla; 2, Robert Thompson.

SPECIAL.

Collection 6 winter varieties, 1, C. W. Challand.

Collection 3 varieties pears, 1, W. H. Bunting; 2, A. M. Smith; 3, Biggs Fruit Co.

PEARS—EXPORT VARIETIES.

Halfcases Ready for Shipment (Fruit Wrapped).

Anjou, 1, W. H. Bunting; 2, A. M. Smith.

Bosc, 1, G. B. McCalla; 2, Robt. Thompson.

Clairgeau, 1, G. B. McCalla; 2, Robt. Thompson; 3, W. H. Bunting.

Duchess, 1, W. H. Bunting; 2, A. M. Smith.

Keiffer, 1, Biggs Fruit Co.; 2, W. H. Bunting; 3, A. M. Smith.

Lawrence, 1, Robt. Thompson; 2, G. B. McCalla; 3, A. M. Smith.

Louise, 1, W. H. Bunting.

DOMESTIC VARIETIES—11-QUART BASKETS.

Flemish, 1, Thos. Beall, Lindsay.

Seckel, 1, G. B. McCalla; 2, W. H. Bunting.

Sheldon, 1, G. B. McCalla; 2, W. H. Bunting.

Any other variety, 1, W. M. Robson, Lindsay; 2, A. M. Smith; 3, W. H. Bunting.

GRAPES.

Agawam, 1, W. H. Bunting; 2, Robt. Thompson.

Concord, 1, Robt. Thompson; 2, F. G. Stewart, Homer; 3, W. H. Bunting.

Lindley, 1, F. G. Stewart; 2, Robt. Thompson; 3, W. H. Bunting.

Niagara, 1, W. H. Bunting; 2, Robt. Thompson; 3, F. G. Stewart.

Vergennes, 1, F. G. Stewart; 2, W. H. Bunting; 3, Robt. Thompson.

Wilder, 1, F. G. Stewart; 2, Robt. Thompson.

Black grapes, 9-pound basket, 1, F. G. Stewart; 2, Robt. Thompson; 3, W. H. Bunting.

Red grapes, 9-pound basket, 1, W. H. Bunting; 2, F. G. Stewart; 3, Robt. Thompson.

White, 1, W. H. Bunting; 2, Robt. Thompson; 3, F. G. Stewart.

Black grapes, best crate, 1, W. H. Bunting; 2, Robt. Thompson; 3, G. B. McCalla.

Red grapes, best crate, 1, Robt. Thompson; 2, W. H. Bunting; 3, G. B. McCalla.

White grapes, best crate, 1, W. H. Bunting.

Hothouse grapes, collection, 1, John Chambers, Toronto.

Hothouse grapes, 2 bunches, black, 1, John Chambers, Toronto.

Hothouse grapes, 2 bunches, white, 1, John Chambers, Toronto.

General collection by Association, 1, Chatham F. G. A.; 2, Leamington Horticultural Society.

PRESERVED FRUIT.

Cherries, 1, Mrs. P. W. Hodgetts, Toronto; 2, A. M. Smith.

Peaches, 1, Mrs. P. W. Hodgetts; 2, A. M. Smith.

Pears, 1, Mrs. P. W. Hodgetts: 2, A. M. Smith.

Plums, 1, Mrs. P. W. Hodgetts; 2, A. M. Smith.

Raspberries, 1, Mrs. P. W. Hodgetts; 2, A. M. Smith.

THE PROSPECTS FOR EARLY VEGETABLES

Commission dealers in leading Canadian cities do not all agree in regard to the advisability of increasing the production of vegetables for the early summer markets. Desiring to gain some information on this point, The Horticulturist, during September, wrote to a number of leading commission dealers and asked them if they considered our Canadian markets could absorb larger quantities of early vegetables grown as they are in south Essex. The replies received are here published.

It will be seen a decided majority of the dealers heard from believe there is room for a considerable increase in the production of these vegetables. Our markets, they consider, can handle at remunerative prices all the early vegetables likely to be offered for some time. The Winnipeg market does not seem promising.

OUR VEGETABLES THE BEST.

Prospects for sale of early vegetables in Canada are excellent. Gardeners can sell at good prices all they can raise. In competition with the vegetables from the United States the home grown have the preference every time.—(Dixon Bros., Hamilton, Ont.

Growers are perfectly justified in producing a larger quantity of early vegetables for the simple reason that they will arrive at destination, if properly handled, in better conditon than those imported from the States, and retail dealers in Toronto will be willing to pay a better price. If larger and regular quantities were produced, there would not be much fear of competition from foreign goods. Canadian markets can stand a very material increase in the amount of vegetables raised for early market, and more especially if we can secure better transportation and arrange for better distribution.—(The Dawson Commission Co., Limited, Toronto, Ont., H. W. Dawson, manager.

So little of the early vegetables from Essex county are marketed in Toronto it is difficult to give an answer concerning them. I have no doubt a greater quantity could be handled to advantage.—(McWilliam & Everist, Toronto, Ont.

EARLY VEGETABLES IN GREAT DEMAND.

There is a very great demand in Montreal for early vegetables. Canadian gardeners could largely increase their income if they would devote more time to this crop. Thousands of dollars' worth are imported regularly from New York and Boston, and if our government would only take up the matter in a business-like way it would be greatly to the advantage of the Canadian growers.—(John T. McBride, Montreal, Que.

There is a great demand for early vegetables in our market, as we have to import these goods from New York and other United States markets, until our own stock is on the market. It can be readily seen by the government books the great quantity of these goods brought to Canada from United States points before our local vegetables are ready to market.—(Hart & Tuckwell, Montreal, Que.

If by early vegetables is meant those that can be put on our markets say in March, April, May and perhaps the first part of June, I would say there would be a good market here for such, but by the end of June our own market gardeners supply splendid vegetables of all kinds.—(Walter Paul, Montreal, Que.

CANADIAN FRUIT AND THE IRISH MARKET

In the September issue of The Canadian Horticulturist attention was drawn to the advisability of shipping fruit to Ireland. Trial shipments were made during August at the request of Mr. J. H. Sheridan, of Columbus Road, Drumcondra, Dublin, Ireland.

In a letter to The Horticulturist Mr. Sheridan gives some interesting information concerning conditions on the Irish markets. He writes "While I do not wish to in any way injure the trade of the English fruit merchants, it may be of interest to Canadian growers to know that there are in Dublin wholesale fruit buyers, ostensibly trading on their own account, who are in reality the paid representatives of English firms handling Canadian and American consignments. If the Liverpool price for say, Spys, is 16 shillings a barrel, and the Dublin price 16 shillings, it is open to question if the shippers have the benefit of the higher figure at which the consignment would be sold by such firms in Dublin. I could, of course, give the names of such firms, but no good purpose would be served by so doing.

"I note that you are making small experimental shipments to Belfast via Liverpool. There is no cold storage coming direct to Ireland, for although Canadian and American boats so fitted up stop at various Irish ports they do not discharge cargo, but with fair cargoes of fruit coming here arrangements could be made with the different companies to discharge at Dublin, Belfast and Cork. The Canadian Pacific Company, subsidized by the Canadian Government, ought to do this, and should I succeed in making arrangements with the growers I shall do

my best to arrange for such accommodation at this side. Following up your shipment to Belfast, might I ask if you would be disposed to try the Dublin market with some trial consignments ? If you could see your way to do this I will undertake to do my utmost to get you a good return, and convince you that Dublin offers a good and profitable market.

"The first consignment of the season of American apples arrived this week in Dublin. They were sold as Baldwins and realized 21 shillings a barrel; and Liverpool price being 14 to 15 shillings. I examined several of the barrels, and although sold as Baldwins, found they were made up of different varieties, all of a very poor quality and badly bruised. The fact of these barrels being made up of different varieties still further bears out the statements which I have repeatedly made to Canadian growers, viz., that a proportion of good quality Canadian apples on arrival in England is mixed with a lot of inferior American stuff and the whole parcel sent over here and sold as first grade. This form of tampering would be impossible were growers to send consignments to this market, and Canadian fruit would be thought more of than at present."

"There is nothing to prevent an English or continental firm receiving consignments from Canada having a branch house in Ireland, under an assumed name, and working this market to their own advantage. I merely mention the matter to show one of the disadvantages which growers have to contend with under the present system. If for no other reason, I think this ought to be sufficient to induce growers to pack their own fruit and ship it to an agent here to sell for them. I am anxious to get shipments from growers for this market, and as it is likely that some readers of my letter in The Horticulturist may ask if you can give them any information concerning me I might say I am prepared to furnish any references that may be desired. I am also prepared to give them any guarantee they may wish that their interests will be mine, and the more I get for them the better it will be for myself."

Advertisements in The Canadian Horticulturist give good results.—(Dawson Commission Co., Limited, Toronto, Ont.

A GIFT OF $10.00

Will be given the reader who buys goods to the greatest value on or before **Jan. 15th, 1905**, from the advertisers in this month's issue of the Horticulturist. - - -

Readers must notify advertisers that they saw their advertisement in this paper.

When applying for the $10 bonus, they must inform this office of the name or names of the advertisers they dealt with, and the value of the goods they purchased from each.

Application for this bonus must be made to this office on or before **Jan. 18th, 1905.**

Address,

ADVERTISING MANAGER,

The Canadian Horticulturist, TORONTO, ONT.

FRUIT GROWERS and FARMERS

The Southern Fruit Grower is the best, most practical fruit paper to read. 24 to 40 pages every month .50c a year. Send 10c and 10 names of fruit growers and get the paper 6 mos. on trial. Sample free. **Southern Fruit Grower, Box 10, Chattanooga Tenn.**

CRAZE & GOODWIN

Fruit Brokers

MANCHESTER

Shippers of Apples to England are invited to correspond with us.

Central Market for nearly **Seven Million** people. Consignments accepted for all English ports.

Highest References.

Cablegrams, "**Campania, Manchester.**"

FLOWERING BULBS

FOR FALL PLANTING. FOR THE HOUSE AND GARDEN.

Crocus—Choice, Mixed, All Colors.....	10c.	doz.,	50c.	per	100
Hyacinths " " "	60c.	"	$4.00	"
Tulips " " "	25c.	"	$1.25	"

Prices Postpaid. Write for our 1904 Bulb Catalogue—FREE.

Special Prices to Horticultural Societies on application.

JOHN A. BRUCE & CO., Seed Merchants

HAMILTON, CANADA.

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

TO THE DEAD YEAR

It seems but yesterday, and yet I know
  Thy smiles are dead, thy glories passed away!
Thy voice has left the earth where, to and fro,
  Death's children wander now in bare array.
One would not guess a thing had e'er been gay
  In fields or woods, where now the fall winds spread,
The leafless branches tossing in dismay,
  'Neath skies no longer blue, but dark with dread.

Yes, thou art gone! and yet a lesson rife
  With truths from Him thy death is meant to teach,
Like thine, the summer days of life
  Must fade, and age's winter come to each.
Do not the falling leaves these sermons preach,
  That hope is not a shield against decay?—
That time will soon the dreams of youth impeach,
  And write the summons none can disobey?
And yet thy death old year but makes it plain
  That though we die, we too, shall live again.

T. H. RACE.

Nova Scotia Fruit Growers While in Convention at Windsor, N. S.

Between two of the sessions of the Nova Scotia Fruit Growers' Annual Convention at Windsor, N. S., a photographer secured this photograph, of some of the leading officers and members, specially for The Canadian Horticulturist. The gentleman leaning against the pillar and with a sheet of paper in his hand is Mr. Starr, who judged the fruit at the Provincial Fruit, Flower and Honey Show, in Toronto, during November. In front of Mr. Starr, and also holding a piece of paper, is the new president of the association, Mr. Ralph S. Eaton; while the secretary, Mr. S. C. Parker, may be seen to the left standing next the lady. The convention was a pronounced success.

The Canadian Horticulturist

JANUARY, 1905

VOLUME XXVIII NUMBER 1

THE FRUIT SHOULD BE A SEPARATE DIVISION

IT has been announced in the press that the Dominion fruit division will shortly be placed under the control of the Dominion dairy division. This action is the result of the resignation of Prof. James W. Robertson as the Commissioner of Agriculture and Dairying. That the fruit growers of Canada are opposed to such action is evidenced by interviews secured by The Canadian Horticulturist with representative growers.

"Such action," said Mr. W. H. Bunting, of St. Catharines, the honorary president of the Ontario Fruit Growers' Association, and a prominent member of the Niagara Peninsula Fruit Growers' Association, "would be very disastrous to the fruit interests of Canada. Our fruit interests are important enough to have a footing of their own and should not be made subordinate to any other interest, no matter how important that interest may be. As fruit growers we feel that we should have the right, through the chief of our division, to go direct to the Minister of Agriculture. This right will only be assured us by the fruit division being recognized as a division by itself, with its head responsible only to the Minister of Agriculture. I am satisfied that any such action will be strongly opposed by fruit growers generally, and would like to see the views of the growers laid before Hon. Sydney Fisher in time, if possible, to prevent the proposed amalgamation."

Mr. Murray Pettit, of Winona, a director of the Ontario Fruit Growers' Association and president of the Niagara District Fruit Growers' Stock Co., Limited, said: "It is decidedly in the interests of fruit growers that the fruit division shall be continued as a division by itself and not amalgamated with any other division. The fruit interests are of great importance and are increasing in extent very rapidly. As fruit growers we feel that these interests will be best served by being directed solely by a person who represents the fruit interests, this person to be directly responsible to the Minister of Agriculture and to no other person. Fruit growers generally are of this opinion and are strongly opposed to any action that is likely to affect the value of the work of the fruit division or that will restrict its operations in any way."

One of the largest fruit growers in Canada, Mr. E. D. Smith, of Winona, was equally emphatic in his views as expressed to The Horticulturist. "The fruit interests," said Mr. Smith, "while not as important as the dairy interests, are of sufficient importance to be entitled to a division independent of any other. When we make suggestions to the head of the fruit division we do not want to feel that these suggestions must in turn be submitted for approval to the head of some other division, who is in no way interested in fruit, before action can be taken. If it is proposed to com-

bine these interests no action should be taken until Parliament meets, when this matter may be thoroughly considered. As a fruit grower I will strongly oppose any fusion of the fruit and dairy divisions and I am satisfied that other fruit growers feel the same way."

As will be seen in another column the Prince Edward Island Fruit growers, at their annual convention during the third week of December, passed a resolution unanimously opposing the proposed union of the two divisions, the opinion being freely expressed by those in attendance that such an amalgamation would likely prove disastrous to the fruit interests of Canada.

A leading Ontario fruit grower, speaking to The Horticulturist, stated that were the dairy and fruit divisions joined, with the chief of the dairy division as the superior officer, it would simply mean that the fruit interests of Canada would be the tail of the dairy kite. Owing to lack of space, The Horticulturist is unable to give the views of more growers on this subject, but can state that every fruit grower heard from is thoroughly opposed to the proposed combination of the two divisions.

PRINCE EDWARD ISLAND FRUIT GROWERS' PARLIAMENT

MATTERS of great interest and importance to the fruit growers of the Dominion as well as of Prince Edward Island were dealt with at the ninth annual convention of the Prince Edward Island Fruit Growers' Association held at Charlottetown, December 20 and 21. The Fruit Growers' Association is the most vital of all the garden province's organizations and keen interest was, therefore, manifested in the subjects discussed.

Several important decisions were reached. It was resolved to ask the Dominion Minister of Agriculture to place fruit commission merchants under Dominion regulation; to give inspectors under the Marks Act right of control in loading apples on shipboard; to put express companies under the jurisdiction of the railway commission; to ask for government assistance to inaugurate co-operation; to recommend the purchase of a full line of horticultural implements for the experimental farms; to urge the convoking of a National Fruit Growers' Council; and, to make The Canadian Horticulturist the official organ.

AN IMPORTANT RESOLUTION.

The following resolution, which was adopted unanimously, was recognized to be of great importance. In passing it the growers felt assured of the support of the great body of the fruit growers throughout the Dominion. This resolution read as follows:

"Whereas it has come to the knowledge of this association, through the press, that an amalgamation of the Fruit with the Dairy Division of the Department of Agriculture, Ottawa, is in contemplation; therefore it is resolved that this assemblage of the fruit growers of Prince Edward Island do respectfully express to the Honorable the Minister of Agriculture its unqualified disapproval of any such amalgamation as detrimental to the large and increasing horticultural interests of Canada, which call for extension in their central offices rather than restriction."

THE CONVENTION A SUCCESS.

Much of the credit for the decided success of the convention is due the president of the association, Rev. Father A. E. Burke, of Alberton, who was unanimously re-elected as president amid much enthusiasm. Rev. Father Burke's sympathy with the agricultural interests and splendid powers of direction are known and appreciated and perhaps more thoroughly without his own

province than within, although his leadership is there universally admitted. The manner in which the meetings were managed and the enthusiasm and spirit of enquiry they aroused was most noticeable. Nothing but questions of vital interest were considered, and they were discussed so thoroughly as to give general satisfaction.

The principal speakers were Messrs. Alex. McNeill, Chief of the Fruit Division, Ottawa; Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa, both of whom are very popular with the Island's fruit growers; Saxby Blair, Horticulturist, Nappan, N. S., and G. H. Vroom, D. F. I., of Middleton, N. S., who are becoming noted in the Maritime Provinces as horticultural authorities. All the speakers gave splendid satisfaction. Mr. McNeill spoke on "Varieties in Canadian Orchards," "The Fruit Marks Act" and "Cooperation"; Mr. Macoun, on "Guides to success in fruit culture," "The work at the Farms," "Strawberries," and answered many interesting questions in the question box.

The president's address was one of those comprehensive reviews of the horticultural situation for which Father Burke is noted. Its salient note was the one advocating cooperative packing houses for the Island where the grading, packing and storing of apples would be done, as well as jamming, canning and evaporating. Attention was drawn to the value of a Canadian congress of fruit growers. A touching moment was reached when the president asked the assemblage to stand and attest its condolence with the families of the members who died during the year.

Among the subjects on the program, all of which proved interesting, were: An address by Dr. Fletcher, of the Central Experimental Farm, Ottawa; Pollination of Apple Blossoms, T. Ross, B. A.; Cranberry Culture, C. R. Dickey; Commercial Orcharding, Senator Ferguson, who is a most enthusiastic fruit grower; Plum Culture, D. J. Stewart; Some Difficulties of Island Horticulture, John Johnstone, and Further Notes on My Experimental Orchard, W. C. White. Demonstrations were given by representatives of the Dominion Fruit Division of the proper grading, packing and marking of fruit for the home and export

Fruit Exhibit at the Recent Convention of the Nova Scotia Fruit Growers' Association.

(Photograph taken specially for The Canadian Horticulturist.)

trade. Several of these papers will be published in The Horticulturist.

Among the prominent people at the convention were: Senator Robertson, the Lieutenant Governor, who attended two sessions and spoke twice; Mayor Kelly, Alex. Martin, J. J. Hughes, M. P., and others.

(Continued on page 39.)

NOVA SCOTIA FRUIT GROWERS ARE WIDE AWAKE

THE annual convention of the Nova Scotia Fruit Growers' Association was held at Windsor, N. S., during the week of December 5. Fine addresses were presented throughout the sessions, a large number of interesting and profitable subjects being discussed by experts in various lines.

The fruit exhibits were one of the best features. The Ontario exhibit was the same as shown at the Toronto Industrial Exhibition, it having been placed in cold storage immediately after that exhibition. A very creditable display was made from Prince Edward Island, consisting of 18 different varieties, while British Columbia was represented by four varieties. The New Brunswick exhibit, unfortunately, went astray while in transportation. About 20 varieties of Nova Scotia apples were displayed, making the finest collection on exhibition. The Elwanger & Barry Nurseries, of Rochester, N. Y., showed the best collection of pears ever exhibited at Windsor.

The officers chosen at the convention for the ensuing year were: President, Ralph S. Eaton, of Kentville; vice-president, John Donaldson, Port Williams; secretary, S. C. Parker, Berwick, and treasurer, G. W. Munro, Wolfville. The treasurer reported a balance on hand December 1, 1904, of $1,893.36, which with the government grant added gave the society a balance of $2,100. The secretary explained that $750 was received for the Horton school equipment, when it was turned over to the new government college at Truro.

The president, Mr. Ralph S. Eaton, gave an interesting address. "The past season," he stated, "was a rather discouraging one to Nova Scotia fruit growers, following, as it did, the best year they have ever had. The spring of the year opened with marked freedom from diseases in orchards of any kind. Until nearly the middle of June the weather seemed so like that of the previous year, most growers sprayed only once, hoping for a duplicate of the season of 1903 in regard to the quality of their fruit. However, the black spot made a fearful inroad, especially in the greater part of King's county, more particularly on Gravensteins, Spys, Ben Davis, Baldwins, Russetts, and others. The action of the government in sending, as an object lesson, a power sprayer into the section was a commendable one." As the experiment cost the government but little, each orchardist having paid five cents for each tree sprayed, Mr. Eaton expressed a hope that the experiment will be repeated. A thoroughly successful trial in Hants, King and Annapolis counties, he believed, would be worth thousands of dollars to the industry.

The quality of the fruit this year has not alone been disappointing. The first of July the crop promised even heavier than last year, the largest record being 600,000 barrels, but on account of dropping of the fruit in the summer, lack of size and discount in quality, it is doubtful if Nova Scotia shipped half that number this year. The plum crop was rather light, and peaches were practically a failure.

AN IMPORTANT MOVE.

The association took the initiative some six years ago in moving for the federation of the schools of agriculture and horticul-

ture into a provincial college. Circumstances led to the establishment of an institution at Truro the past summer. An experiment is again being made with a sailing vessel for the ocean freighting of some apples by the loading of the barque Skola at Wolfville. The condition of the cargo on arrival is watched with interest. Refering to future business Mr. Eaton stated a retrospective glance might be in order. In 1897 President Bigelow said, "The time has come when we must base our calculations for apple crops at not over $1 per barrel." Not until this year has the price approached this figure, and even this year, with a big crop in all apple countries, the buyers did not give more than $1.25 to $1.50 per barrel.

(Continued on page 44.)

A FAR NORTHERN FRUIT EXPERIMENT STATION

AUG. DUPUIS, DIRECTOR FRUIT EXPERIMENT STATIONS FOR QUEBEC.

THE fruit station established at Gaspe Basin, Gaspe county, Quebec, by the Quebec government in 1898, on the farm of Mr. Wm. Clark, has been successful beyond my expectations. The orchard comprises two and a half acres and is a most healthy and vigorous condition. The apple trees bear good crops of fine apples of the following varieties: Yellow Transparent, Tetofsky, Duchess of Olds, Alexander, Wolf River, Wealthy, and English Golden Russet. The Yellow Transparent is a fall apple, while the Duchess, a winter apple, keeps till February. The Wealthy is a late winter. Downing gooseberries and Cuthbert raspberries yield great crops.

The orchard is protected from the great winds of the gulf by a hill, and from all sides by rows of deciduous and evergreen trees planted as wind shields. In plums the little Mirabelle (of France) and the Reine Claude de Montmorency (of the island of Orleans, near Quebec) are the only two varieties that have thrived when grown on their own roots and not grafted. As this orchard is in nearly the 49° of latitude, it is, I believe, the most northern fruit plantation on the continent.

Two thousand apple root-grafts of the above named varieties planted in nursery rows in 1900 have grown and prospered. Not quite 20 per cent failed. Mr. Clark sold most of the trees last year to farmers in the neighborhood, teaching them how to cultivate the trees and how to protect them.

This successful experiment in the far north has induced Mr. Henri Menier, of France, to experiment on a large scale on the island of Anticosti. He bought fruit and ornamental trees last year at the Village des Aulnaies Nursery to the value of over $1,000, and will spare no expense to obtain success in his experiment. Trees bloom in Gaspe by June 20.

THE SCARLET CRANBERRY. I was interested in the notes on the Cranberry Pippin apple which appeared in the December issue of The Canadian Horticulturist. Have any of your readers made a comparison between the Cranberry Pippin and the Scarlet Cranberry? I would greatly appreciate information in regard to the origin and chief characteristics of the Scarlet Cranberry.—(S. A. Beach, Horticulturist, Geneva Experimental Station, N. Y.

The sulphur, lime and salt wash, full strength, California formula, thickened to the consistency of cream, with fresh cow dung, I find an almost sure remedy against mice. Put it on with a whitewash brush. —(S. J. Rutherford, Quebec.

QUEBEC FRUIT GROWERS IN ANNUAL CONVENTION

HAROLD JONES, MAITLAND, ONT.

THE twelfth annual winter meeting of the Quebec Pomological and Fruit Growing Society, from the point of value, was one of the most successful in the history of the society. The meetings took place December 14 and 15 at Ayer's Cliff, Que. The speakers had been carefully chosen and were men well qualified to deal with the topics under discussion. Their addresses were selected with careful consideration to their special value to the Quebec fruit grower and farmer.

It is to be regretted that a larger number of the farmers around Ayer's Cliff did not avail themselves of this excellent opportunity to receive information on fruit growing. Those who did attend could not but appreciate the effort made to make the meetings both beneficial and entertaining.

Owing to press of business, Mr. Norman E. Jack, president of the society, was not able to attend, but the able vice-president, Mr. Fisk, of Abbotsford, warmly welcomed everybody to the meetings. A valuable paper on Cauliflowers and How to Grow Them, was given by Mr. R. Brodie, of Westmount, Que. This paper is published in full in this issue of The Horticuluturist.

Mr. W. T. Macoun, Horticulturist, Experimental Farm, Ottawa, followed with an exhaustive and valuable paper on the cultivation of potatoes. An extract from this paper is also published in this issue of The Horticulturist. The discussion brought out the fact that early and frequent spraying with Bordeaux mixture and paris green easily doubles the crop and that the perfect beetle and hard shelled bug does not do much if any damage. If the larvae or slug is killed when young the crop will not be injured.

Prof. G. Reynaud, Horticulturist, La Trappe, Que., spoke in French on some causes of unsuccessful fruit culture. His remarks were listened to with a great deal of interest by those familiar with the language.

A practical address on fruit growing in connection with general farming was given by Mr. Harold Jones, of Maitland, Ont., whose remarks caught the attention of the meeting and led to a lively and interesting discussion. This address will appear in the February issue of The Horticulturist.

Prof. Waugh, of the Massachusetts Agricultural College, Amherst, Mass, as is always the case, was the life of the meeting. He gave a valuable talk on dwarf trees, their uses, propagation and management. The pleasure and profit that may be derived by growing apples and pears in large quantities on small areas was clearly shown. The quality of the fruit is superior to that grown on standard trees of the same variety. Dwarf trees come into bearing at from one to three years after grafting, which makes them valuable to plant between standards while waiting for these trees to come into bearing.

AN EXHIBIT OF FRUIT.

On the fruit tables were shown about 80 plates of apples. It was a surprise to the visitors from Ontario to see such fine samples and also to see such varieties as King, Spy and Ben Davis grown to perfection. Mr. Fisk, of Abbotsford, exhibited 10 plates, among which were very fine samples of Lawver, Ben Davis and Fameuse. Mr. J. B. Edwards, of Huntington, had 15 plates, which won him much credit, his Wolf River, Spy, King and Johnathan deserving special notice. Six plates, with some very fine specimens of Kings, were shown by Mr. Brodie.

Other exhibitors were Messrs. Asa Johnston, 16 plates, including fine specimens of Bethel, Spy, Baxter, Edghill and Fameuse; Wm. Craig, winter sweet crabs and some fine cranberries; and Mr. Rowell, 15 plates of fine Wealthy, Wolf River and Nodhead.

Ralph S. Eaton, Kentville, N. S.

The new president of the Nova Scotia Fruit Growers' Association, Mr. Ralph S. Eaton owns probably the largest orchard in Canada. It contains 25,000 trees, including 15,000 apple, 6,000 plum, 2,000 cherry, 1,000 peach, 500 pear, and 500 apri ot and quince. A view of a section of this orchard appears on the front cover of this issue. A description of Mr. Eaton's orchard and methods will be published in an early issue of The Horticulturist.

Messrs. Hichcock, Carter, Peck and Prof. Macoun also exhibited plates of fine apples, principally of the varieties mentioned above, with the addition of Milwaukee, La Victoire and Canada Baldwin, all of them being varieties of promise.

The directors, reporting for their several divisions, stated little or no planting was done during the past year. The only insect of note was the railroad worm, which caused some damage in Mr. Shepherd's orchard, and others adjoining, near Como, Que. The spot injured some Fameuse, but the damage was not serious. No spraying was done in the majority of orchards, but those that did spray were satisfied with the results.

Prof. W. M. Munson, of the University, Orono, Maine, lent his valuable aid by giving an address, Horticultural Education. The value of practical education in connection with science was pointed out, and that nature study is one of the most important links in agricultural training. In the past there has been too much luck and not enough intellect in farming. Nature will do a certain amount by herself, but it rests with man to enhance the production. Colleges are maintained to help get the boys and girls of our country out of ruts.

The afternoon session of the last day was given over to Messrs. J. F. Scriver, Fruit Inspector; F. L. Kenny, of South Hero, Vt., and Harold Jones, of Maitland, Ont. Mr. Kenny held his audience with an able address on fruit growing compared with other farm pursuits. This led to an informal and interesting discussion.

Thursday evening brought out a paper by Mr. W. H. Dempsey, of Trenton, Ont., which dealt with the question of fruit growing for profit. This address was listened to with the closest interest and attention, as those present knew they were listening to one of the largest and most successful apple growers in the province of Ontario and that every word he uttered was worth listening to. A copy of this address will appear in a later issue of The Horticulturist.

The meeting closed with an address by Mr. J. C. Chapais, St. Denis, Que., who told the fruit growers in Quebec what he saw and heard at the Fruit, Flower and Honey Show in Toronto, Ont., in November, and his able account convinced those present that he was endowed with a wonderful pair of eyes and ears combined with a conceptive and ready mind.

In travelling over this section of the province one is astonished that there are so few orchards when there are so many suitable locations available for planting. Many eastern farmers are, thereby, denied this health-giving fruit or obtain it at a cost much greater than the cost of production. —G. H. Hutton, Grenville county.

ORCHARD MANAGEMENT IN NEW ENGLAND*

PROF. W. M. MUNSON, UNIVERSITY OF MAINE.

THERE are certain general factors which control orchard management in all countries. Briefly summarized, they are: Tillage, fertility, pruning, varieties, propagation and parasites.

The soil is a storehouse for plant food, and the object of tillage is to make this food available. For this purpose the physical condition, or the texture of the soil, is of the greatest moment. Most soils contain an abundance of plant food if the soil particles are sufficiently minute to allow the roots to lay hold of this food readily.

Plants take their food only in the form of solutions, which are absorbed by the root hairs, carried up through the tissues of the plant to the leaves, where they are digested; after which they are returned for the building up of the tissues and the formation of fruit buds. The root hairs lay hold on the film of moisture which surrounds each particle of soil, rather than upon the free water between the particles. For this reason it is of the greatest importance that the number of particles be as great as possible, thereby greatly increasing the area from which the food may be obtained.

Water which falls during the growing season is entirely inadequate for the growth of plants during that season, hence it is important that some provision be made for storing moisture which falls at other times. This can best be done by making the soil loose and porous, that it may act in the same way as does a sponge.

Besides providing a storage reservoir for moisture, it is necessary to prevent, so far as possible, the natural evaporation, in order that the water with the plant food in solution, may be forced to escape through the medium of the desired plants. The appearance of grass growing by the side of an old log or stone, as compared with that at a little distance away, is a good illustration of the value of a mulch in conserving moisture. The best mulch or blanket for this purpose is a thin covering of dry earth, such as is provided by shallow cultivation.

THE FERTILITY FACTOR.

The value of tillage in aiding chemical processes by warming the soil, admitting oxygen and decomposing organic matter, is self-evident, and a simple statement of fact is sufficient. Any land which will grow good farm crops will maintain a fruit plantation, but profit in fruit growing lies in securing superior quality. The amount of plant food to be added in any given case will depend on the amount of increase of profit which will result from such treatment. The successful merchant is the one who forces trade. The successful fruit grower is the one who produces the best and finds a market for it.

To get the best results keep the land at work. Weeds do not run out the land, but they use plant food for purposes which are not desired. The best treatment for weedy land is to give it thorough cultivation and to use more plants of a desirable character. The weedy farm is, as a rule, a poorly farmed farm.

THE PRUNING FACTOR.

A tree is essentially a colony of individuals among which there is a constant struggle for existence. If left to nature the strongest, or those having the best position on the tree will survive, but to get the most satisfactory results the orchardist must prevent this natural struggle and give those branches which he desires to favor a better opportunity for life. The cutting of large limbs is not necessarily injurious to a tree, but it is advisable to go through the orchard every year and thus, as far as possible, avoid the necessity of removing large limbs.

* Abstract of an address delivered at the annual winter convention of the Quebec Pomological and Fruit Growers's Society, held at Ayer's Cliff, Que., Dec. 14 and 15.

Pruning may actually stimulate the growth of trees by throwing the vitality into the remaining branches, exciting a more vigorous growth and in turn causing a reflex action on the growth of the roots. Many trees, if left to themselves, will over bear, and the removal of some of the branches may often be one of the best methods of thinning the fruit. The time and method of pruning will depend on the purpose in view, whether for shape, for increased growth, or fruit.

One of the most important elements in the value of pruning is that the owner is thus brought into closest contact with his plants. The true lover of plant life shapes and cares for his plants as thoughtfully and works out his ideals as carefully as he would train and guide a child.

Within the past few years there has been a marked advance in the interest and attention given to orchard management throughout New England. Many of the most extensive growers are practicing cultivation and the use of cover crops, while the value of spraying as a means of destroying insect and fungus enemies is recognized.

One of the most serious problems which confront the New England orchardist is that of the apple maggot, or trypeta. Orchardists are united, however, in the belief that the faithful destruction of windfalls, and all affected fruit, will result in reducing the loss from the pest. For this reason many growers favor the use of hogs in the orchard. An advantage claimed for hogs is that, in addition to destroying the pest referred to and adding to the fertility of the land, they serve a very important purpose in the way of cultivation. Important object lessons in the renovation of orchards, by the use of hogs, even in the absence of an application of specific fertilizers, may be seen in many of the orchards in Maine.

At the Maine Agricultural Experiment Station an important investigation as to the relative merits of cultivation as compared with mulching the trees, and also the relative merits of commercial fertilizers and barn manures, is being conducted. The results of this work thus far indicate a decided advantage in favor of treatment by cultivation.

The leading commercial apple in the orchard centers of Maine is the Baldwin; although Tolman, R. I. Greening, Roxbury Russet, Northern Spy and Ben Davis are received with favor by many. There is a general belief that the Baldwin gives the most satisfactory results when top grafted on some stock of known hardiness, while some would use native seedlings. There is probably no doubt that some strong growing variety like Tolman, Northern Spy or Stark is to be preferred, because of the lack of uniformity among seedlings.

There is a strong tendency to increase the planting of orchards in Maine and to more fully enter into a friendly competition with our Canadian friends in supplying the markets of the mother country. We must admit, however, that Canada is very much in the lead in so far as the control of the marketing is concerned, and it is to be hoped that New England will profit by the experience of Canadian growers.

There is plenty of room in eastern Ontario for the development of the fruit industry both for immediate consumption in the homes on the farm, and as a means of materially increasing the farm revenue.—(G. H. Hutton, Grenville county, Ont.

A Rack for Hauling Apples.—Do you of the readers of The Horticulturist know of a convenient rack for hauling apples packed in barrels? A subscriber would like to read a description of one with, if possible, a diagram drawing.

TESTING SULPHUR WASHES ACROSS THE LINE

PROF. LOCHHEAD, O. A. C., GUELPH.

MESSRS. Parrott and Sirrine, of the Geneva Agricultural Experiment Station, made three experiments in three different orchards to determine the effect of fall applications of various sulphur washes upon fruit and leaf buds, and the comparative values of these sprays for the San Jose scale treatment. The results obtained in these orchards were not alike and showed considerable variation in the effect of the treatment upon leaf and fruit buds.

In orchard No. 1 the average loss of blossoms on the peaches was 72 per cent., on the plums about 83 per cent. The loss of leaves on the peaches was about 68 per cent., and on the plums about 58 per cent. In orchard No. 2 the plum blossoms were reduced by 10 to 50 per cent., with slight edgery of the foliage. In orchard No. 3 the sprayed trees were unaffected by treatment, and, in fact, they showed increased vigor.

THE WASHES WERE EFFECTIVE.

With regard to the relative effectiveness of the different washes it may be said that all the washes tested proved effective. The experimenters make the statement that "the washes which are well suited to the needs of the average orchardist are the lime-sulphur wash, boiled by fire or by steam, and the lime-sulphur salsoda wash, prepared without external heat." It would appear, therefore, that further experiments are necessary to prove definitely whether fall spraying is likely to be followed by injury to the trees. It may be added that in some experiments carried out by one of our Ontario fruit growers in the Niagara district the autumn spraying was decidedly injurious, not only to the blossoms and leaves, but to the limbs.

The Entomologist of the Connecticut Experiment Station, Mr. Britton, reports that he sprayed 800 trees in December as an experiment; and as a result of this experiment he is able to state that fall or early winter spraying gives good results. Both boiled and unboiled mixtures are used. He also states that the boiled mixture of lime and sulphur, using as much or a little more lime than sulphur is probably as effective and as inexpensive as any mixture for the ordinary orchard work. Of the mixtures made without boiling he finds that the potassium sulphide and lime is an excellent one for a few small trees and shrubs, but is rather expensive for spraying large trees, and that the lime-sulphur and sodium sulphide mixture is a promising one, worthy of further trial, and giving good results

DISEASES OF PLANTS AND TREES

FRANCIS WAYLAND GLEN.

ARE trees and plants subject to the attack of malignant, contagious, epidemic diseases similar to such as cause the death in large numbers of men, women and children? My answer is: Yes, and I will give one of many facts I have learned from personal contact with trees and plants when attacked by such diseases. Between 1852 and 1858 cholera was prevalent in a certain section of Rochester, N. Y. The neighborhood was badly drained and otherwise in an unsanitary condition, and the people used stimulants freely. As many as 50 persons died in a short time.

The same year we had a block of pear trees budded on Angiers quince stocks which we imported from Paris. They were very strong and vigorous. The land upon which we planted them was low, and the soil composed chiefly of decayed vegetable

matter, and not well drained. When the buds were one year old a large percentage of them were six feet high. The next year we cut them down as usual to force them to form branches, and at the end of the two years the majority of the trees were 6 feet high. I had occasion to go through the block daily to cut branches off for budding on quince stock.

In August I discovered one morning that some trees, which, the day before were perfectly healthy, had turned black, the sap in the body had also turned a dark color, and the trees gave out an unpleasant odor. I cut every one of them out and burned them, assuming that the disease was contagious. Every night and morning I went through the block removing every diseased tree, and before the epidemic passed I cut out at least 2,000 trees out of the 5,000 in the block.

In the same year I had another block of pears on quince, the same age, but on well drained ground, which was not so rich. These trees made a growth of three and a half to four feet in the two years. The two blocks were within 1,000 feet of each other. There were very few deaths in the well-drained block. I had the same experience with plum trees.

LATEST RESULTS FROM SPRAYING FOR SAN JOSE SCALE*

PROF. R. HARCOURT, ONT. AGRI. COLLEGE, GUELPH.

DURING the season of 1897 the San Jose scale was first discovered in the orchards of Ontario. Since that time the scale has caused serious damage and loss, especially to the owners of peach orchards; but, thanks to the energetic manner in which the matter was taken in hand by the Department of Agriculture, we are now able to say that methods for the controlling of this pest have been devised and are in operation and that the majority of the fruit growers recognize that the scale may be controlled and the vigor of an orchard maintained independent of its surroundings. It may not be possible to entirely eradicate the scale, and, like the potato bug, it may always be with us; but, just as the proper use of arsenical poisons may be used to control the latter, so the lime-sulphur wash may be used for the former and with equally good results.

One pleasing feature in connection with the application of the lime-sulphur wash is that it has greatly benefited the trees in other ways. To ascertain whether it is possible to still further cheapen and simplify the preventives for the scale the following experiments were undertaken:

In reporting the latest results from spraying for San Jose scale, I wish first to draw your attention to the trial of the relative efficiency of the lime-sulphur wash and the McBain Mixture. This test was made in the orchard of Mr. Bunting, St. Catharines, and under the auspices of a special committee appointed by the Fruit Growers' Association. The orchard selected consists of 65 thrifty growing but badly infested peach trees. Before the spraying was done each tree was carefully examined by Messrs. Bunting, Thompson and Healey, the members of the committee, and by Prof. Lochhead, and full notes were made regarding the condition of the scale on each tree.

Every other row was then sprayed with the lime-sulphur wash, and the intervening rows with the McBain Mixture. The application of the former was attended to by Mr. Bunting and of the latter by Mr. McBain. Both men were allowed to make the spraying as thorough as they saw fit, but nothing further was to be put on the trees until after they were examined by the committee. The lime-sulphur wash was the same as was being sold in the neighborhood

* A paper read at the Annual Convention of the Ontario Fruit Growers' Association during November and which was crowded out of the December issue owing to lack of space,

at 90 cents per barrel, and the McBain mixture cost $2.50 a barrel.

The trees were carefully examined by the committee about the middle of July and again about a month later, and later still by Prof. Lochhead; and the general opinion was that there was practically no difference in the efficiency of the two remedies. The cost of the McBain mixture, however, practically put its use out of the question, unless it was for a few trees where the lime-sulphur wash could not be procured.

OTHER WASHES TESTED.

The same day a barrel of the lime-sulphur and sal soda and a barrel of the lime-sulphur and caustic soda washes were prepared and applied on the trees of an adjoining orchard which were also badly infested with the scale. The former wash is one recommended by Dr. E. P. Felt, State Entomologist, New York. His formula and directions for preparing the mixture are as follows: Lime, 25 pounds; sulphur (flowers), 20 pounds; sal soda, 12½ pounds; water, 1 barrel. "Put 5 or 6 gallons of hot water in a wooden barrel, add the lime, quickly following with the sulphur and sal soda, and stir until the slaking is practically completed. It may be necessary to add a little cold water at intervals to keep the mixture from boiling over. After the violent action has ceased, cover the barrel to retain the heat and allow it to stand 15 to 30 minutes, dilute to the full quantity and apply." In our preparation of this wash we first stirred the sulphur into the hot water and then added the lime and sal soda.

The lime-sulphur caustic soda was originated with the Geneva Experiment Station, New York State. The formula and directions for preparing the wash are as follows: Lime, 30 pounds; sulphur (flowers) 15 pounds; caustic soda, 4 to 6 pounds; water, 1 barrel. "In preparing the wash, the lime was started to slake with six gallons of water, and while slaking, the sulphur, which had just previously been made into a thin paste with hot water, was added and thoroughly mixed in with the slaking lime. To prolong the boiling of the wash, the caustic soda was then added with water as needed, and the whole mixture was kept thoroughly stirred. As soon as the chemical action had ceased the required amount of water was added, when the mixture was ready for use. Aside from the heating of the water, the cooking of the wash was done in a tub or barrel, and took from ten to twenty minutes. In some preparations, especially when hot water was used to start the slaking of the lime, not all of the stated amount of caustic soda was employed, but six pounds was the maximum."

In preparing this mixture we followed the same plan as mentioned with the former wash. The sulphur was first stirred into hot water and then the lime added. When the boiling ceased all the caustic soda was put in at once. The whole was thoroughly stirred to prevent caking on the bottom of the barrel. The caustic soda should be used in the granulated or powdered form to insure the best results.

WHERE THE TESTS WERE MADE.

Both the washes developed the characteristic color of the well boiled lime-sulphur combinations, and those present were delighted with the simplicity of the method of preparation. These washes were made and applied in the orchards belonging to the following gentlemen. Careful notes were made on the condition of the trees before the wash was applied. The orchards and tests were: Mr. Geo. Robertson, one barrel of lime-sulphur and sal soda, only two trees badly infested; Mr. W. C. McCalla, one barrel of lime-sulphur and sal soda, trees badly infested; Mr. Greffith, one barrel lime-sulphur and sal soda, one tree particularly badly infested; Mr. W. H. Secord, one barrel of each wash, trees all infested, worst ones marked; Mr. Tittrington, one

S. C. Parker, Berwick, N. S.

Much of the success of the work of the Nova Scotia Fruit Growers' Association has been due to the energetic and capable work of its officers, of whom one of the best is the secretary, Mr. S. C. Parker. At the December convention of the association Mr. Parker was unanimously re-elected secretary.

barrel of each, trees badly infested; Mr. McArdle, one barrel of each, trees badly infested.

These orchards were visited in July and August by Prof. Lochhead, J. Fred. Smith, Robt. Thompson, P. W. Hodgetts and myself, and in every case little or no difference could be seen in the amount of living scale between the trees sprayed with these mixtures and those on which the boiled lime-sulphur washes had been used. Some of the members of the committee were inclined to think that the mixture containing the sal soda gave rather better results but there was very little difference.

Of this season's work Dr. Felt reports to the effect that excellent results were obtained from the use of the lime-sulphur and sal soda mixture. The Geneva Experiment Station workers state that the results obtained from the wash were good, but not uniform. At the New Jersey Experiment Station, Prof. Smith reports that this wash has been quite effective, but that it is not so good as the bottled mixture and costs a little more. The indications from this year's experiments are, that if properly made, a useful material is obtained.

The ease with which these mixtures may be prepared will greatly recommend them to the small fruit grower who has not sufficient trees to warrant the installing of a steam boiling plant. It cannot, however, be too strongly emphasized that the greatest care must be exercised in the preparation of these washes. Only freshly burned lime of a quick slaking variety should be used and it must be handled in such a way as to recover the maximum of heat from the slaking. In order to accomplish this hot water should be used to slake the lime. In preparing the lime-sulphur caustic soda wash the caustic soda must be added in the powdered form, as in this condition it dissolves more quickly and causes more violent boiling than when in the big lumps.

Regarding the cost of these washes, as compared with that of the boiled mixture, it is impossible to give exact figures, for the cost of the boiling will depend on the efficiency of the steam plant used. As about the same amount of lime and sulphur are used in all cases, it practically leaves the cost of the boiling to be compared with the cost of the sal soda or caustic soda used, and the required quantity of these to make a barrel of the mixture can be obtained for 25 cents.

There is no doubt any of these mixtures will destroy the scale, but every part of the tree must be covered with the wash. Any part left uncovered acts as a seed bed for the reinfestment of the whole tree. As it is practically impossible to cover every crutch and crevice on the tree, the use of the lime-sulphur washes may not exterminate the scale, but there is no doubt that when they are properly applied the pest can be controlled.

FRUIT MATTERS IN MICHIGAN DISCUSSED

J. L. HILBORN, LEAMINGTON, ONT.

I HAD the pleasure and profit of attending, as representative of the Ontario Fruit Growers' Association, the annual meeting of the Michigan State Horticultural Society. The meetings were held December 6, 7, 8 at Benton Harbor, a beautiful town of some 10,000 inhabitants, situated on the eastern shore of Lake Michigan in the midst of the Michigan fruit belt.

Three years ago I visited this famous fruit section and spent a day or two inspecting the numerous peach orchards and vineyards for which the locality is noted. Among those visited was the much lauded and finely kept 200-acre orchard of Mr. Roland Morrall, who believes in and practices the most thorough cultivation and pruning. I liked his system of pruning the best of any I have seen. He has few main branches and these are regularly shortened quite heavily, making very stalky, strong trees, which have produced many very profitable crops.

There are many other very fine orchards in that vicinity and the best kept vineyards I have ever seen. The latter are all trained on horizontal trellises and most of them are carefully looked after. As the fields are quite level in the vicinity just south of Benton Harbor, where most of the grapes are grown, they present a very attractive appearance. We also visited a number of fine large peach orchards in the vicinity of Fenwell and Douglas, nearly all of which are headed much lower than they are usually grown in Canada and annually cut back quite heavily.

The 1904 annual meeting was a decided success. There was a nice display of plate fruit of good quality. The superintendent of the South Haven Experimental Station, Mr. T. A. Farrand, had a fine display of fruits grown there, including a dozen or so plates of nuts. He gave us a valuable address on varieties of apples, peaches, plums, cherries, nuts, etc., which they had tested.

Prof. W. J. Green, horticulturist of the Ohio station at Wooster, gave an interesting address on mulching orchards. He is strongly in favor of the sod mulch for orchards of all varieties of fruits. He prefers to have a sod field to start with and to dig good sized holes in the fall, planting the trees in the spring and mulching heavily a space four feet in diameter. The grass is mowed once or twice during the season and part of it is placed around the trees while they are young. It is left where cut after the trees get large. The speaker was well acquainted with the famous Hitching orchards, also several others handled in much the same way, which he claimed are entirely successful. They have been experimenting with that method for several years at the Ohio station, and the speaker claimed the results were very satisfactory. They tried it on a block of peach trees, cultivating half of it. The other half was seeded to grasses and the trees mulched. The latter grew as well as the culutivated portion and came through last winter in good condition, while the trees that were cultivated were all more or less injured.

A lively discussion followed the address and many theories were offered in objection, but the speaker claimed that the success of the orchards that had received this treatment was the best argument. The only real objections, he said, are danger from mice and fire. The former is overcome by removing the mulch directly against the trees and earthing them up. By exercising proper care there is not much danger of fire.

The meetings throughout were well attended and much interest was shown in each session. The writer received every attention and kindness from the officers and members of the society and was assured that they would send a representative to the annual meeting of the Ontario Fruit Growers' Association next year.

ONTARIO GROWERS ADOPT RESOLUTIONS

AT the annual convention of the Ontario Fruit Growers' Association in November the following resolutions were adopted :

That the thanks of the association be tendered the sister society of Quebec for sending a representative, in the person of Mr. Chapais, to assist in our deliberations.

That the thanks of this convention be tendered to Mr. G. H. Powell, of the United States Department of Agriculture, for his attendance at our meetings and his valuable address on cold storage.

That the members of the Ontario Fruit Growers' Association have heard with sorrow of the affliction which has visited one of our oldest and most respected members, Mr. T. H. Race, in the death of his wife, and wish to express their sincere sympathy with him in the great loss sustained.

That this convention, representing the fruit growing interests of Ontario, desires to express its appreciation of the services rendered by the Dominion Department of Agriculture in inaugurating a system of crop reporting in regard to fruit, and hopes the service will be continued and be extended.

That this convention urges upon the Minister of Agriculture for Canada the advisability of securing such legislation as will give the inspectors under the Fruit Marks Act, or other suitable officers, absolute control over the loading of apples on shipboard for export from Canadian ports.

That this convention desires to respectfully but most strongly urge the Parliament of Canada to so amend the Railway Act as to place express rates under the control of the Railway Commission as are freight rates.

That whereas there is reason to believe that in many cases the returns made to fruit growers by commission dealers do not represent the full amount of the prices realized by such dealers, therefore be it resolved that the Minister of Agriculture for Canada be urged to take such steps as may be necessary to place commission dealers under Dominion regulations with a view of wholly preventing or largely reducing such fraudulent practices.

WHAT THE PEOPLE THOUGHT OF THE FRUIT, FLOWER AND HONEY SHOW

WHILE the Fruit, Flower and Honey Show was in progress a representative of The Horticulturist asked a number of the leading people present what they thought of the show. The following expressions of opinion were secured:

"I believe this is the beginning of a big annual affair."—(The President, R. J. Score, Toronto.

"The show is a decided success and ought to be continued. The general effect has been of a valuable educational nature. The citizens of Toronto ought to give it their fullest patronage."—(Edward Tyrrell, President Toronto Horticultural Society.

"A feature of the exhibition which I consider of great value is the opportunity it affords for instruction in the best methods of grading and packing fruit, as shown by the expert packers from the Fruit Division. In addition to this the display of commercial packages and the fruit from the different provinces will serve to attract the buyers of fruit from our large cities, the adjoining Republic and the Old Country, which, if the show is continued, will develop a trade that is capable of almost unlimited expansion."—(W. H. Bunting, St. Catharines, Honorary President of the Ontario Fruit Growers' Association.

"The exhibit of flowers is the best ever made in Toronto. It is unfortunate the show could not have been held in a more suitable location and in a place of crystal construction, better lighted and adapted for such a purpose. As a convention city, and

A Portion of The Fruit Stations' Exhibits at the Recent Provincial Show.

Among the most interesting features at the Provincial Fruit, Flower and Honey Show, were the exhibits made by the Ontario Fruit Experiment Stations, portions of which are here shown. The grapes on the table in the foreground were a fine collection shown by Mr Murray Pettit, of Winona. The exhibits on the raised stand were the property of Mr. Linus Woolverton, of Grimsby, the superintendent of the stations, and Mr. A. W. Peart, of Burlington, both of whom showed excellent specimens of many varieties of fruit. (Photograph taken specially for The Canadian Horticulturist.)

in view of future requirements, such a building is one of Toronto's most pressing needs."—(Robert W. King, Toronto.

"The exhibition is the best of the kind we have ever held. The exhibit of commercial boxes is a most interesting and promising feature of the show. This feature can be greatly developed, as can the commercial side of the exhibition. I would like to see it arranged so that exhibitors could take orders for fruit."—(Linus Woolverton, Grimsby, Superintendent of the Fruit Experiment Stations.

"This is the best show ever held in Toronto. More florists from other cities have visited the exhibition than ever before and all have been delighted."—(Thos. Manton, Eglinton.

"The people who attended this exhibition appeared to be a better class than attended our previous shows."—(W. G. Rook, Toronto.

"The citizens of Toronto ought to be ashamed of themselves for not patronizing this show in larger numbers. Without exception the exhibits of fruit, flowers and honey are the best ever seen in Toronto."—(H. R. Frankland, Toronto.

"I am delighted with the exhibition. Every department is strong and I think the organizations interested should feel greatly encouraged."—(R. B. Whyte, Ottawa.

"It is a grand affair. For a start off we could not look for anything better. The bee men are satisfied."—(D. Anguish, Scottsville.

"A perfect success. Some Old Country people tell me they never saw anything like it. A show of this kind is just what is needed. It affords an opportunity for the growers to meet and bring out their ideas. The management has been quite satisfactory under the circumstances and I trust the show will continue."—(Alex. Biggs, Burlington, Ont.

"A grand success. The members of the Bee Keepers' Association have passed a resolution expressing the hope that the show will be continued another year. If it is we will be with you again."—(H. G. Sibbald, Claude, Ont., President of the Ontario Bee Keepers' Association.

"The exhibits are excellent. The show has been a decided success and should be continued."—(W. T. Macoun, Central Experimental Farm, Ottawa.

COOPERATION AMONG ONTARIO FRUIT GROWERS

THE following article is the continuation of the account, which started in the December issue of The Horticulturist, of the discussion on cooperation, held at the recent convention of the Ontario Fruit Growers' Association. Mr. D. Johnson, of Forest, had been asked what price growers in his section, who did not cooperate last fall, received for their apples.

Mr. Johnson: "Very few growers were able to sell their fruit at any price, but those who did sell realized 50 to 60 cents per barrel for their firsts and nothing for their seconds. Some only obtained 10 to 12 cents per bag for No. 1 apples."

Question: "What did you do with your waste fruit?"

Mr. Johnson: "It was sold to two evaporator firms and we obtained 15 cents a bag for the peelers and 5 cents for chops. One of these evaporators is located at my place and handles 100 bushels per day; the second one is at Forest and is managed by a company which handles 500 or 600 bushels a day."

Question: "How much fruit did you handle?"

Mr. Johnson: "About 38 or 40 carloads. We also cooperated in securing our barrels. We bought our own material and employed a cooper. The barrels were of excellent quality and cost us only 28 cents each. At the last of the season, when our supply was exhausted, we tried to buy some barrels from coopers, and although we enquired everywhere we were unable to obtain any for less than 45 cents per barrel and they were not nearly as good as those we had made ourselves.

"Some one, this afternoon asked how a man could be expected to sink his own identity when he joins an association of this kind. The members of our association sunk their identity and have never regretted it. Occasionally some of the growers place their initials on their barrels, but the initials never appear in the invoices or bills. We are well pleased with this year's work and look forward with confidence to next season. One of the benefits that has resulted from handling our fruit in this way has been that the steamship and railway lines have been anxious for our business and have made material concessions to obtain it. Mr. Sherrington's suggestion that the growers should have a central organization is a good one. I have thought that if a central station could be established, say at Toronto, so that the various local associations could all ship their fruit to it or arrange to have their fruit handled in bulk it would be a much better method than anything we have at present."

Question: "Did you pack in cases?"

Mr. Johnson: "No. We were young in the business and did not care to undertake too much the first year. I am sorry now that we did not ship some of our fruit in that way."

Question: "What was done with your culls?"

Answer: "We sent them to the evaporator and the returns were utilized to defray general expenses."

Question: "That seems hard on the man who had a lot of culls?"

Answer: "Yes, but we told such men that it cost more to handle their fruit."

COOPERATION IN ONTARIO COUNTY.

A call was here made for Mr. Elmer Lick, of Oshawa.

"There are," said Mr. Lick, "a great many difficulties before fruit growers when they try to cooperate. In our district the buyers combined and coaxed the growers to forsake the cooperative association, and we found it difficult to carry out our plans. There were many buyers this year and they offered the farmers good prices."

Question: "How much was offered?"

Mr. Lick: "As high as $1 per barrel in some cases, but in the end the growers were

unable to obtain this amount when the buyers settled."

"A few of us," continued Mr. Lick, "combined and shipped our fruit together, and I believe we are going to obtain better prices than the growers who sold privately. Now that we are forming so many cooperative associations throughout the country it has struck me that we need a central head to combine and watch the interests of all. Such a body might be called The Ontario Fruit Growers' Union, and the various subdivisions might be called the Forest Branch, the Whitby Branch, etc."

Mr. Sherrington: "It has been intimated that the reason the fruit growers in the Forest and Walkerton districts have been able to cooperate was because the buyers did not oppose the movement. That was not the case in our district. The buyers tried the same game with us that they did with Mr. Lick. Some of our growers were coaxed off, but they were afterwards sorry and were glad to come back. It was the same at Forest."

COOPERATION IN THE NIAGARA DISTRICT.

Mr. Robert Thompson, of St. Catharines: "The fruit growers in the St. Catharines district became incorporated several years ago and lately we have been devoting our efforts largely to improving the freight service. Last year, in spite of the heavy crop of plums, we obtained fairly satisfactory prices, and we now find that our members expect higher prices for their crops than they used to before we cooperated. Last spring we held a number of meetings along the line of the railways to urge greater cooperation, but as this year's crop has been rather small and the prices good we did not push the matter as we would otherwise have done. We do quite a little in the line of cooperative spraying. In the township of Louth the fruit growers bought an outfit and did good work. In our township some of the threshers took charge of the work and the growers agreed to pay their share of the expense. The results of this spraying have encouraged the growers to grow more fruit. The response of the trees to this treatment has been very encouraging as the spraying not only prevents but acts as a remedy for the scale and has an equally beneficial effect on the curl leaf and other kindred diseases. The results have greatly encouraged the growers.

"We have also cooperated in the purchasing of paris green, blue stone, boxes, etc., and, thereby, have made a nice saving. When purchased in large quantities we find that the quality of the spraying material secured is much better than where growers buy individually in small quantities.

"In regard to the trial shipment of fruit to Winnipeg I may say that the fruit growers in the vicinity of St. Catharines are sufficiently well satisfied with the results that they are willing to continue such shipments provided proper oversight is given and the interests of growers are safe guarded at the other end."

Question: "What is the largest district that can safely be included in a cooperative association?"

Mr. Sherrington: "About ten miles. I am not in favor of districts that are too large. Where the district is too large I would like to see a number of smaller associations put in charge, which in turn would ship to a large central station. I am strongly in favor of F. O. B. sales. When growers do not know what they are going to obtain for their fruit it keeps them on the rack. Buyers with whom I have talked assure me that they are willing to do anything they can to assist the formation of cooperative associations but they desire to be assured of the proper grading of the fruit."

THE BURLINGTON FRUIT GROWERS ASSOCIATION.

The methods that have been adopted by a number of the fruit growers in the vicinity

of Burlington were described by Mr. A. W. Peart. "A small number of the fruit growers in my district," said Mr. Peart, "have cooperated in a general way. By doing so we find we can buy our supplies much cheaper and also obtain better shipping rates. Each individual shipper places his name on his own shipments in addition to which they are branded with the common brand of our association, which is simply a number. The buyers in Great Britain make separate reports in regard to the prices realized by each man's shipments. In this way we are able to keep track of the amount due each grower. All our fruit is shipped in boxes and we find we make 50 cents to one dollar per barrel more by shipping in this way. Our boxes average four to the barrel.

"We find that it is cheaper to handle our fruit in this way on account of a saving in the cost of labor. In sorting and grading apples, women are able to do as much and in some cases more work than men and at one half the wages. The women will not handle large packages and were we to use large boxes we would have to employ men, which would cost more."

Question: "What is the size of your boxes?"

Mr. Peart: "Nine by 12 by 18 inches inside measurement. We have found this size works well as our growers obtain due credit for their shipments."

Question: "Is there anything binding in your association?"

Mr. Peart: "No, only our honesty. If we had a central packing house we would endeavor to arrange so that each man's name would continue to appear on his consignments of fruit."

Question: "Do you think it would be possible to grade your fruit to the satisfaction of your members?"

Mr. Peart: "No, that would be reaching the ideal."

Question: "If you found a man was shipping poor fruit is there any way in which you could prevent his using your brand?"

Mr. Peart: "We are very careful when taking in members. We will not allow a man to join our association unless we know he ships good fruit. The price each grower receives is the best safeguard we have that he will ship good fruit. We find it is a good one.

"When the market in the Old Country is not satisfactory we sometimes arrange to have our fruit stored. On some occasions fruit has been stored for some months. Our system works out well for late pears suitable for export. We have shipped without cold storage and have found that the pears arrived in good condition."

Question: "Do you send a man to Great Britain to watch your interests?"

Mr. Peart: "No, we simply consign our fruit to commission men."

Question: "Could not growers place a man in Great Britain to watch their interests?"

Mr. Peart: "Such an arrangement would be very difficult. The British firms, handling Canadian fruit, have been in the business for a great many years and are firmly established. Most of them have numerous connections in other cities and know how much credit they can give their agents and how long it is safe to let their credit run. Were growers to try to compete against these firms we would find it almost impossible to meet their opposition. Such a man, however, might be of great value in watching the prices at which fruit was sold, etc."

Mr. H. W. Dawson, commission merchant, Toronto: "I have made a study of this cooperative question and have reached the conclusion that apples handled through central packing houses with a common brand will do more to improve the trade than anything else."

DISEASES OF THE GRAPE IN ONTARIO IN 1904 *

W. T. MACOUN, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

KNOWING that rot was causing serious damage in a number of vineyards in the Niagara peninsula, I took an opportunity during September, to visit some of them in the hope of learning facts of value in regard to the diseases of the grape. Accompanied by Mr. W. H. Bunting, of St: Catharines, I visited his vineyard and others in the neighborhood of St. Catharines and found that Mr. Bunting had sprayed seven times and his fruit was only slightly injured.

When the grapes were the size of peas Mr. Bunting had bagged 1,000 bunches in order to find out if infection took place before that time. Most of the bunches thus bagged were perfect, but some had the black rot in various stages of development, showing that infection had taken place before the grapes were as large as peas. The Niagara grape was the variety most affected. Several vineyards of Concord near Mr. Bunting's were examined, but black rot had not worked to any extent in them. Brown rot was, however, found in one vineyard, but had not done much injury to the fruit. Another vineyard, containing about 15 acres, was visited, consisting principally of Concord, Brighton, Niagara, and Moore's Early. Of Niagara and Brighton there was scarcely a sound grape anywhere, and none of the bunches of Concord, even with manipulation, could be made fit for market. Moore's Early was not affected. This vineyard had not been sprayed.

The infection by the black rot as it appeared in the vicinity of St. Catharines was first noticed on the fruit as a round, brownish spot about the size of the head of a pin. This brownish appearance gradually spread over the surface of the berry, and by the time one-third of the surface was covered the original brown spot had become paler, showing distinctly the mark of infection. After the whole grape became brown, the tissue gradually shrunk and dried, and when thus shrunken the fruit appeared black and prominently and irregularly ridged, the surface being covered by small black postules.

THE BROWN ROT.

The vineyards of Mr. Murray Pettit, of Winona, Ont., and others in that vicinity were also visited. No black rot was noticed at Winona, but brown rot was quite abundant, and while it had not caused such damage as the black rot, it had done considerable injury. The leaves of the vines affected with brown rot had a downy appearance underneath. The affected fruit first showed a brownish spot or patch on one side and a shrinking of the tissue. The brownish appearance spread all over the grape and the whole grape eventually shrunk into a hard shrivelled mass. When badly affected the vine loses a large amount of foliage. Powdery mildew was also found in these vineyards.

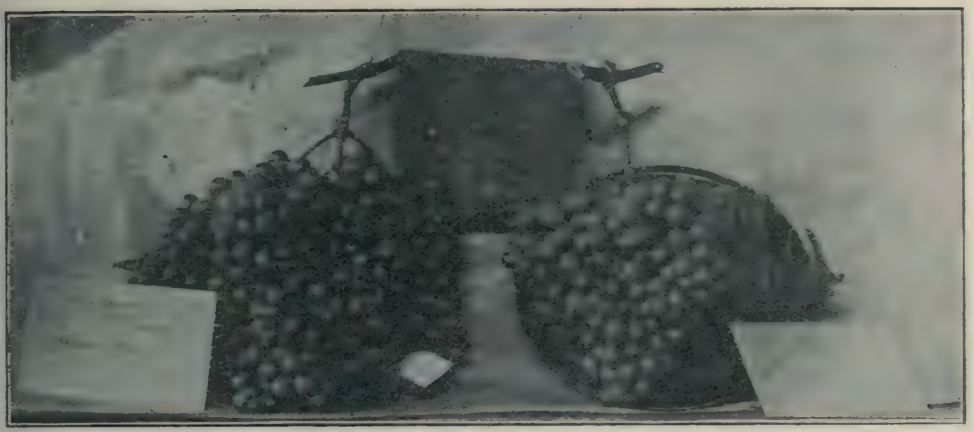
The Niagara grapes, both in Mr. Pettit's and adjoining vineyards, were affected this year with either a new disease or more probably, as Prof. Selby suggests, a condition caused by either powdery mildew or brown rot affecting the stem to which the grape is attached. This disease causes a hardening of the grape and gives it a pale, unhealthy color.

Another disease of the grape which was doing a great deal of injury at Winona was what we took to be the grape-leaf blight, a disease which has not received the attention that it deserves. This blight causes the leaves to wither and drop, thus preventing a free circulation of sap and the proper development and maturing of the fruit.

PERSISTENT SPRAYING REQUIRED.

The diseases of the grape can be controlled by thorough spraying, but the work must be done persistently and carefully. The following are descriptions of some of

* Extract from an address delivered at the annual convention of the Ontario Fruit Growers' Association held in Toronto, November 16-18, in connection with The Provincial Fruit, Flower and Honey Show.



Two Monster Bunches of Grapes.

These two bunches of hot-house grapes were shown at the recent Provincial Fruit, Flower and Honey Show, by Mr. John Chambers, City Park Commissioner, Toronto, and attracted a great deal of attention. One weighed six pounds, two ounces, and the second four pounds, one ounce. The grapes were grown in an ordinary greenhouse. (Photograph taken specially for The Canadian Horticulturist.)

the most injurious diseases of the grape in Canada, with the best remedies known:

Anthracnose, Bird's Eye Rot, Scab *(Sphaceloma Ampelinum)*. This is the only grape disease which has given any trouble at the Central Experimental Farm. It is difficult to control by spraying, but fortunately, only a few varieties have been affected, Lindley being the worst. This fungus attacks leaves, stems, and fruit, but it is on the fruit where it is most noticed. The disease is apparent in depressed patches extending along the stems, which checks the growth. There are also reddish brown patches on the leaves.

The stems of the clusters of grapes are frequently affected, and when the disease occurs there the fruit remains green and eventually withers, making an imperfect bunch. The disease on the fruit occurs in roundish brown spots with a purplish margin, giving somewhat the appearance of a bird's eye. Frequently spots unite and form a large irregular area. This is a very difficult disease to control, and though spraying with Bordeaux has not checked it to any extent, spraying before the buds open, before blossoming, after fruit has set and ten days later with Bordeaux mixture, is recommended.

IS INVADING CANADA.

Black Rot *(Laestadia Bidwellii)*. Up to recent years this disease was thought to have reached its northern limit south of Lakes Erie and Ontario, but during the last few years in Essex county, and more recently in the Niagara peninsula, it has caused much damage. The appearance of this disease has already been described, but something further may be said regarding it. The spores live over winter on the vine and in the affected grapes, and germinate when growth starts in the spring. The disease attacks the leaves and shoots, the leaves showing the disease in roundish reddish brown patches and on the stems, small, long shaped, dark, brown, slightly depressed spots, on the surface of which appear the characteristic postules of the black rot.

When conditions are favorable the disease only requires 8 to 12 days from the time the spore germinates until the mycelium has run its course through the fruit and has produced new spores. Before the grape shrinks much in size the mycelium concentrates, as it were, in small masses underneath the skin,

and in these are produced the spores. These masses soon break through the skin, and the black pustules with the spores appear. The spores are scattered and they reinfect other fruit and vines. Although it is possible for a new generation of spores to be borne within two weeks, it requires favorable weather conditions for the disease to develop.

While early sprayings, in some cases, have not been found to give the results expected, the life history of the disease shows that it is wise to endeavor to destroy as many spores as possible at or before the first infection. The first spraying should be made just after the fruit has set, the third and fourth at intervals of about a week—all with ordinary Bordeaux mixture. There should then be three sprayings with ammoniacal copper carbonate of soda Bordeaux. Although the disease will probably not be eradicated from a vineyard in one season, the more thoroughly the spraying is done the less trouble there should be. It is now 16 years since it was conclusively shown that Bordeaux mixture would control this.

GIANT SEEDLESS GOOSEBERRIES

SAMPSON MORGAN, RICHBOROUGH VILLAS, BROADSTAIRS, ENGLAND.

THE list of seedless fruits is being rapidly extended. The seedless orange was followed by the seedless plum, which was succeeded by the seedless apple, and now we have the seedless gooseberry. There can be no doubt as to the importance of this latest new comer, at least as far as the fruit trade is concerned. The seedless gooseberry will become popular, directly it is put on sale. Judging from the enormously increased consumption of berry fruits during recent years, it will readily take a firm hold upon the public taste.

When this fruit is well grown and ripened, few others surpass it. That is evident when we bear in mind the fact that during the past year gooseberries put up in flat punnets have sold as high as one shilling a pound retail and in quantity. Freed from its numerous seeds, the gooseberry of the future will command equal prices with mid-season grapes. The new berry is not only free from seeds, but it has a remarkably thin skin, and the amount of acid in the pulp has been reduced materially. The fruit has been almost perfected.

The hard skin of the old-fashioned gooseberry has always been a defect, and one that has prevented most of the supplies marketed from being sold at more satisfactory values. A sweet gooseberry of full size, devoid of seeds, and with a thin soft skin, would be an undoubted acquisition to retailers and consumers. It should, in fact, soon equal the summer grape in popularity. The introducer claims that the seeds can in due time be eliminated from all of the fruits in commerce, and that it is just as easy to produce a seedless grape and pear as a seedless apple or gooseberry. It will surprise many of the public to be told that gooseberries are often grown as large as many kinds of plums. The new seedless berry is of mammoth proportions.

The Cuthbert raspberry, notwithstanding its liability to kill back at the tips during winter, in a good season leads all others in quantity and quality.—(G. C. Caston, Craighurst, Ont.

Of the cooking cherries, nothing can compare with Dukes, a class of semi-sour red cherries that cannot be excelled for sauce and pies.—(Linus Woolverton, Grimsby, Ont.

Growing Gooseberries

R. B. WHYTE, OTTAWA, ONT.

THE chief difficulties in growing gooseberries are the hot weather and the liability to mildew. The gooseberry succeeds in Britain, and we should compare our conditions with those found there to see in what way we may overcome our difficulties. One of the first conditions in Britain is the rich soil. We here are apt to forget that farm soil in England has been cultivated and fertilized for 200, 300 or 400 years. Gooseberries must be well fed. I am inclined to believe in the theory that no insect or disease ever attacked a healthy, well-fed tree.

Another consideration is the moist climate. They never know in Britain what it is to have long spells of dry weather like we have, and the climate is more moist. Other conditions are a more equal temperature and the saltiness of the atmosphere.

With regard to temperature, it is difficult for us to get the moderate temperature that growers have in the Old Country. Some obtain it very satisfactorily by planting the bushes between trees, but certainly we can get fine gooseberries by so doing, and they should be in partial shade. The trouble which comes from excessive temperature is that the berries which are exposed to the sun are actually cooked. I have seen berries with a side scalded yellow by the sun, and then drop off.

It is rather a surprise to those who import plants from the Old Country to see the different styles they grow them in to what we do. The stems of some plants I had were about half an inch in diameter, about 10 inches long, and had roots about four inches across at the bottom. The advantage in that style of growth is, that you ensure the free circulation of air under your plant, and that, I think, is one of the great considerations in preventing mildew. I have grown some of my plants in the American style, and, as a rule, those I start myself I grow in that style; but those from the Old Country are on the long straight stem style.

A Yellow Blackcap

PROF. H. L. HUTT, O. A. C., GUELPH.

Is there a "Yellow Blackcap Raspberry" on the market? I have a Yellow Blackcap raspberry that grew up among my Blackcap raspberries. It bears a large crop of fruit, similar to Gregg in size, but of a beautiful yellow color and of an extra fine quality. The canes are very strong growers and of a peculiar yellowish color. It stood the severe cold of last winter, uninjured, and was unprotected.—(Chester Wiederick, Nanticoke, Ont.

I do not know of any Yellow Blackcap which has been propagated for sale, although we had one here a few years ago which originated with Mr. A. E. Sherrington, of Walkerton. We grew it under the name of Mulatto, but after growing it a few years, discarded it on account of its poor quality. If yours is as promising as you describe it to be, we would like to get a few plants to give it a thorough trial, and would, of course, keep the plants under restriction if you so desire.

I am doubtful, however, if a Yellow Blackcap will ever be popular in the market. Yellow strawberries, yellow tomatoes, yellow raspberries, and most freaks of that kind are not in general favor in the market, although, no doubt, some are well worthy of propagation for home use.

To Grow Grapes of fine sample and good quality the first and most important point is short pruning to prevent overcrowding. The next is to apply sulphur about the last week in June or first in July to prevent mildew, and the next is to allow them to fully ripen before picking. If grape growers would comply with these conditions the market for grapes would require one-half more than it does and at higher prices.—(M. Pettit, Winona, Ont.

THE SPRING TRADE OF THE FLORIST *

WM. GAMMAGE, LONDON, ONT.

ONCE the Christmas holidays are over preparations for the next great event in the florist's year, that is Easter, must be attended to. The varying dates on which Easter falls must always be borne in mind so that you may govern your crop accordingly. For the Easter holiday a number of different varieties of plants, than those forced for the Christmas holidays, will be used. First and foremost are Easter lilies, either the Longiflorum or Harrisii.

For pot plants I consider the seven to nine-inch bulbs the best size. There is a difference of opinion how these should be grown; some contending that they should first be potted in a four or four and a half inch pot and then shifted up into six or seven inch pots, as the plants come along. Others again that they should be potted in the pot in which they are to bloom. The only difference that I can see is a slight economy of space in their early stages. From my several years of experience in growing and handling these I see but little difference in the result when handled by a careful grower.

There is one essential point to always bear in mind; from the time the lily starts growing it should never receive a check, for if it does any germs of disease that are lying dormant are sure to develop. Nor can you guage its date of flowering with the same degree of success as if it had not received a check. There are a number of brands of Lilium Longiflorum on the market, but I do not think that there is any material difference between any of them.

GOOD BULBS REQUIRED.

The main object is to have good, sound, well ripened bulbs. Under the same conditions Longiflorum will come in if started from four to five weeks later than Harrisii. While the lily is the Easter flower *par excellance,* it is also the most expensive to grow and hardest for the store man to handle.

Other plants that will need immediate attention are hydrangeas, crimson rambler and hybrid perpetual roses; these should be brought in and started into growth in a moderate temperature, gradually increasing it, governed by the time at your disposal. Azaleas that are to be held for Easter should be kept in a cool house with an even temperature, free from drip or excessive moisture. Other varieties of plants, such as metrosideros, lilacs, rhododendrons, deutzias, etc., will not need to be brought in before the last week in February or the first in March.

Amongst the soft wooded plants the improved varieties of pelargoniums are going to take a prominent place as an Easter plant. These, if propagated during September and October and kept growing, will make fine bushy plants in five or six-inch pots, with six to ten large trusses of flower, by April. They are easily handled, very floriferous, and find a ready sale, giving customers as good satisfaction as an azalea or a crimson rambler, and will yield a better profit to the grower. Spirea, or Astibula, are also a prominent Easter plant and are sold in large quantities. Dutch bulbs should not be lost sight of. Pans of hyacinths, tulips and narcissus, in their various varieties, are sold in large quantities and are easily brought in at the right time; three weeks in a moderate temperature is all that is required to bring them to perfection.

Lilies of the valley and forget-me-nots in pots and pans are also desirable. It will be necessary to prepare a few foliage plants, such as Boston and Pierson ferns, palms and rubbers, but let your main effort be to

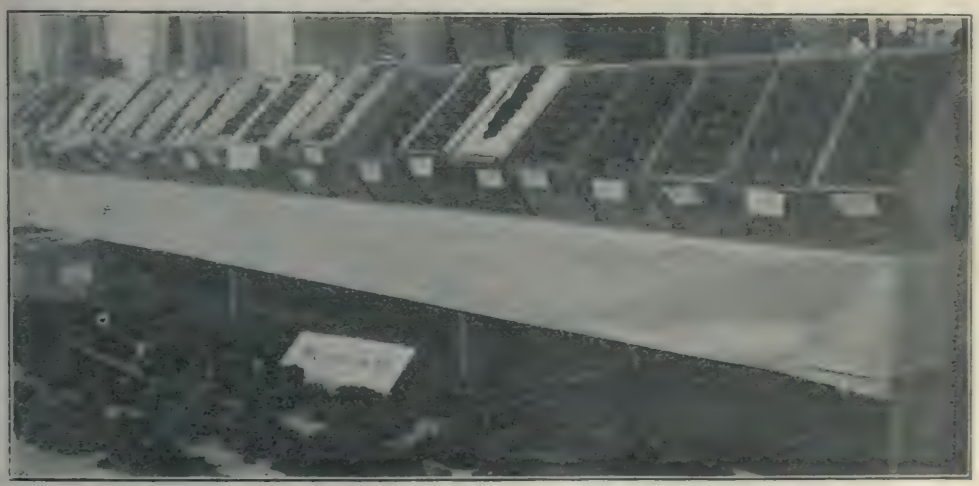
* Extract from a paper read at the annual convention of the Canadian Horticultural Association, held in Ottawa last August.

prepare a stock of good flowering plants for the Easter trade. Of all the holidays in the year, Easter is the one on which most flowering plants are used. Its associations are of a joyous nature and all people, be they rich or poor, high or low, are imbued with the happiness attending the occasion and want something bright and cheerful, in keeping with their feelings.

Care in handling and delivering plants is necessary at all times. Easter lilies are very hard to handle without bruising. For shipping the best method is to allow the plants to become somewhat dry so that the flowers will be just a trifle wilty and each individual flower and bud wrapped in cotton batting. The plants should be firmly staked and each row should be cleated into the cases and a top cleat nailed across the case just below the buds and each row of plants tied to this cleat. If this work is thoroughly done you will have no drawback or rebates to make, for bruised flowers, while in transit.

There are a number of plants that I have not mentioned which might be brought in for the holidays, such as freesias, ericas, ardesias, capsicums, bouganvillia, etc. It is well, from year to year, to change the varieties that you are growing, dropping some that you find the demand decreasing on and adding others that are likely to create a demand. That the demand is increasing, and will continue to do so, is without a question of doubt.

The time was when all our efforts were concentrated in endeavoring to have a sufficient supply of cut flowers to fill the demand, but gradually plants are superseding this demand, and while at holiday times there will always be a demand, sufficient to take all the cut flowers that can be produced, the demand for both plants and cut flowers is not likely to be overdone, for some time to come, for the growth of our country is such that her ultimate possibilities are greater and grander than all the European and American States combined.



An Exhibit of Commercial Packages at the Fruit, Flower and Honey Show.

The exhibit of Commercial Packages including boxes and barrels, was one in which great interest was taken by fruit growers. The boxes and barrels had been packed with the greatest care and presented a fine appearance. A portion of the grape exhibit is also shown. (Photograph taken specially for The Canadian Horticulturist.)

A PLEA FOR THE AMATEUR FLOWER GROWER

RODERICK CAMERON, NIAGARA FALLS SOUTH, ONT.

IT is presumed that the main object of all agricultural, horticultural, and even fruit, flower and honey shows, is the education of the general public to a higher standard of proficiency in the arts, being promoted. May I ask if, in the holding of exhibitions like the recent Provincial Fruit, Flower and Honey Show, we are on the right track ?

Here they are, at our very doors, the old and young, male and female, with a grievance, which the professional florists can rectify if they choose; and depend upon it, if we are to attain excellency in horticulture as a nation, if we are to succeed in teaching the rising generation the art of beautifying our land as has, and is being done in Great Britain, this grievance of the amateurs must be attended to immediately and their wishes be complied with.

Were the exhibitors at the recent show amateurs? No they were all professionals, particularly in the floral sections. Only experts could grow such large flowers as those that were shown. We should show more equality and liberality towards the amateurs. Were they treated as liberally as the professionals at all fairs I am satisfied the results would be surprising, both in quantity and quality. Would this not be a benefit to the commercial florist? There is a prevailing notion among some commercial men that to keep the public in ignorance is a harvest to the florist. What a mistake! Does it not instill into Mrs. Smith a greater love for floriculture if she succeeds in growing a plant successfully? And does not ignorance discourage Mrs. Jones, who says "I have given up buying plants, they all die on me." Why? It is not lack of desire, but a lack of knowledge. As men of business we should also be men of instruction.

What is the method usually adopted at the Canadian National Exhibition in Toronto and all country exhibitions? No encouragement is offered the amateurs, all prizes are entered in the prize lists in such a way that they are open to the professionals to compete for. I question if any amateurs are on the committee that revise the prize lists, where they might be able to right things for themselves. This is not the worst feature; the prizes that are offered are principally for tropical plants, and professional florists' flowers, that cannot be grown successfully without the aid of glass structures, an expense that ordinary amateurs cannot afford.

Have any of us taken the trouble to examine the plants and flowers shown at our principal exhibitions? If we have can we tell how many had their names attached to them? I have seen ladies and gentlemen looking in vain to find the names on plants at the exhibitions held in Toronto each fall. What is the value of any flower without a name, that its history may be obtained. What educational advantage does such impart to the amateurs we are supposed to be helping? It should be made compulsory that all plants and cut flowers be correctly named, and that in a legible manner. Exhibitors who cannot comply witn this request should be cut short ten points for every plant not named, or the unnamed plant should not be counted at all.

The prizes offered for fruit are of a generous nature and are worth trying for, apart from the honor, but the prizes offered for flowers and plants, that amateurs can grow, are of a very penurious nature. This should not be the case. It is of more value to the province for an amateur to grow a pine tree than the best tropical plant. Why then not encourage the growth of hardy plants more than has been done in the past? Why not encourage the growth of hardy plants by farmers' sons and daughters by offering prizes for the best essays upon

such? Would it not have a tendency to make them more familiar with what grows in their own surroundings? It has been said that the best and cleverest men and women in all other pursuits have been reared in the rural homes of meager circumstances. If this is true is there not a chance for the amateur to rise in the art of gardening even to the strength of a Groff, Dale or Dunlop? Give them a fair chance since gardening is the only recreation in which a man of limited means may equal the owner of a thousand acres. Although the owner of only a single lot and ten cents worth of seeds, he can produce whatever he grows quite as well as my lord can his, and his pleasure in doing so may be greater to him than that of the nobleman to whom he may be laborer. Gardening offers so many subjects for an amateur's attention that he or she need not take up that which some one else excells in.

A CHEAP GREENHOUSE *

W. G. ROOK, TORONTO, ONT.

AT a meeting of the directors of our society the opinion was expressed that many of our members would have greenhouses if they knew they could be obtained for a small expenditure. As I have succeeded in building a small greenhouse at but slight expense my experience might be of value to others.

Early in the spring of 1900 I decided I would build a small greenhouse in which to grow the plants I wished to grow in my own garden. The snow was cleaned from the spot selected and soon the ground thawed sufficiently to enable me to commence building. Two sash, seven by eight feet, were purchased for $3.75. The lumber for the sides, ends and benches and the glass for the end cost $7.70. When this material was placed in position I had a greenhouse eight by ten feet.

There not being sufficient time for me to put in a heating system I formed one of the benches into a bin and filled it with fresh manure. This gave enough heat to keep out the late frosts and enabled me to grow 2,000 annuals besides my chrysanthemums for the fall. My success encouraged me to purchase another frame for $1.75 and lumber for $5.35 with which to build a potting shed and a place for the heater. This also being a success, I added in the spring of 1902 another eight feet, which gave me a house 12 by 25 feet. The total cost of construction, including even the latch on the door, was $60. There was no expense for labor, as the building was erected and the heating system installed by myself with the assistance of a former member of this society.

The house is heated by a Globe heater with a Bigley coil inside. One one-and-a-half-inch flow runs from the coil to the greenhouse and then enters two one-inch pipes, which carry the water around the house and return it to the heater. A temperature of 50 degrees can be maintained at night with the weather at zero. During the winter between three and four tons of coal are required to heat the house. The heater and pipes used were bought second hand and cost, with all necessary connections, $15, which is included in the $60 mentioned.

In 1901 I grew about 2,000 annuals. In 1902 I again grew about 2,000 annuals and filled my hanging baskets and window boxes. During 1903 I grew 4,000 annuals and 500 chrysanthemums, and am now

* Extract from an address delivered before the Toronto Horticultural Society. Societies are invited to forward interesting papers read at their meetings.

growing carnations, smilax and forcing bulbs, besides keeping my stock over the winter. With a greenhouse such as this, there is a possibility of securing an income from your labor by growing flowers for exhibitions, prizes, etc.

THE WINTER CARE OF WINDOW PLANTS *

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

SPRINKLING the foliage of most window plants with clear water on fine, warm, sunny days is desirable. Rex Begonias and even geraniums, however, do not like the leaves moistened too heavily. The true Rex Begonias would be better without any sprinkling or sponging of the leaves. Fuchsias, roses, heliotrope and most foliage plants, except coleus, like a sprinkling or sponging of their foliage every few days. This operation can be performed with a small rubber sprinkler, or the plants can be taken to a sink in a warm room and the foliage well sprinkled. As a rule all glossy, smooth leaved plants require frequent syringing or sponging with clear water. It removes dust, and counteracts the evil effects of the dry atmosphere prevailing in most dwelling houses.

Almost all window plants delight in a moist atmosphere, except a few cacti and similar plants. A few shallow pans of water placed under the hot water or steam radiators will help to give the plants a taste of their natural environments.

Prepared commercial plant foods are the best fertilizers for window plants. If, however, good potting compost is used, there will be little need of plant foods. Plants, whose pots have become too full of roots and which have exhausted the soil they are in, are usually the only plants that require fertilizers when properly prepared potting soil has been used.

TEMPERATURE.

More plants are injured and destroyed in these days of self-feeders, hot air furnaces, and steam and hot water boilers, by over-heated and dry atmospheric conditions, than are destroyed by a too low temperature. A temperature of 65 or 70 degrees Farenheit in the day time is ample for most window plants, with a night temperature of 50 to 55 degrees. Plants like a rest at night as well as people. One point in regard to temperature is of importance, and that is to avoid extremes of either heat or cold, as they are dangerous to plant life.

The insect pests that trouble house plants most are the green and black aphis or fly, red spider, scale, and mealy bug. A dry arid atmosphere is conducive to the increase of all these pests, hence the necessity of keeping the foliage of plants they infest as moist as possible. For the aphis, use a strong solution of tobacco water and sprinkle it on where the insects are. Raw leaf tobacco or tobacco stems from the cigar factory make the best tobacco solution, as the ordinary commercial plug tobacco is of little use for plants.

To make the tobacco solution fill a pail about three parts full of the leaves or stems and press them down rather firmly. Pour in enough boiling water to cover them about an inch in depth and nearly fill the pail. Cover the pail with an old bag to retain the steam. Let it stand until cold, in which condition it is fit for use. It will not require diluting, as tobacco water does not injure the foliage like many insecticides. A pint of boiling water poured on a bruised cigar will also make a good tobacco solution. Fumigating with tobacco smoke is very effective, but is scarcely practicable in a window.

* Extract from an address delivered at the convention of delegates from horticultural societies, held in Toronto Nov. 15-16.

Prevention is better than a cure with red spider. A moist atmosphere and sprinkling the foliage, especially on the lower side, is the best preventive against attacks of red spider. These little mites usually attack the lower side of the leaf. A dusting of finely powdered sulphur beneath the leaves, after syringing or sprinkling, is a good remedy and will not hurt the plants. The red spider is the greatest enemy the fuchsia has, and is often the only cause of failure in their growth. It is so small that it is often unseen until the plants are ruined; hence the necessity for preventing its attacks.

The small scale-like insects that attack the oleander, ivy, orange and other plants, as well as ferns, notably the sword fern, can be got rid of by washing the leaves with strong soap suds and rinsing afterwards with cold water. An old tooth brush dipped in soapy water will also remove scale easily. If scale is once moved from its position on the plant it will die.

Mealy bug should be brushed off the plants with a small brush or piece of stick and destroyed, as soon as they appear. This bug infests coleus very badly sometimes, and is very fond of nesting itself on the passion flower plant or in the thick waxy flowers of the wax plant. Good culture is the best preventive of disease in plants.

Most window plants are propagated from cuttings or divisions, chiefly from cuttings of the young wood. Sharp, fine sand is the best material in which to strike cuttings or slips. Almost all kinds of window plants such as geraniums, fuchsias, heliotrope, tradescantia, coleus, chrysanthemums and many others will strike root readily from the young cuttings or growth. Young plants of chrysanthemums are easily struck in the window in a temperature of 55 to 60 degrees in well drained pots or small boxes of sand.

If plants should be frozen, remove them at once into a temperature of 45 to 50 degrees, and cover them up carefully from light and air. If not frozen too badly they will recover. I have found this method more successful than sprinkling the plants with cold water. Unless the latter is done the plants should be kept in the dark for 24 hours before being again introduced into the light. Keep frozen plants out of the sun until they have fully recovered, and do not give them much water until growth has started.

Almost all the spring flowering bulbs flower well when grown in the window. Hyacinths—especially the white Roman hyacinth—and the different varieties of narcissus give the best results for window culture.

Hardy Climbers

PROF. H. L. HUTT, O. A. C., GUELPH.

Would Ampelopsis Veitchii, Clematis Henryii, Jackmanii and Madame Ed. Andre be hardy enough for the Bobcaygeon district?—(E. D. S.

Ampelopsis Veitchii is only about half hardy at Guelph. It usually requires some protection for the first two or three years until it gets started and somewhat acclimatized. Often it is frozen down to the ground during the winter and yet makes a good growth the next season. The best protection is a light screen of cedar boughs or old sacking tacked over the vine upon the wall.

Clematis Jackmanii is quite hardy here, and usually makes a fine display. The C. Henryii and C. Madam Ed. Andre are also fairly hardy, but are not nearly as much grown as C. Jackmanii. I cannot speak with certainty as to the hardiness of these climbers in the Bobcaygeon district, but at all events they are well worth trying, and I am inclined to think that with reasonable protection at the start they would give satisfactory results.

A Beautiful Collection of Hardy Azaleas.

Although this is the season of snow storms and cold weather, the illustration should carry us back to the "good old summer time." What we e probably the best and most successfully grown hardy Azaleas in Ontario last summer are shown. They were grown by Mr. Roderick Cameron of Niagara Falls South, and contain about 100 varieties, double and single flowers, named. Mr. Cameron is shown in the illustration.

Make Fine Decorations

E. MEPSTED, OTTAWA, ONT.

EVERY one in a large or small house should have a plant or two. They are the nicest decoration you can put in your room. A large, handsomely furnished room is not complete without a plant or two. A palm or Boston fern in my eyes is a better decoration than any bric-a-brac.

The most suitable plants for house culture are foliage : Palms, Boston and Pierson ferns, araucaria, aspidistra, asparagus and fern dishes. Don't forget that these last soon get filled with roots and, therefore, need plenty of water, but should not stand in it.

In flowering plants, which should always have the sunniest spot, the best are primroses, begonias, cyclamen, primula obconica, azaleas, cineraria, heather and others, Give the azalea lots of water, keep it in the coolest place, and when it has done flowering don't put it down in the cellar to rot, as many have done to their sorrow. Keep it growing all the time.

Asparagus Plants Wanted

PROF. H. L. HUTT, O. A. C., GUELPH.

I am thinking of planting an acre of Palmetto asparagus next spring. Can you furnish the name of anyone selling first-class plants in Ontario. Last year I purchased 2,000 roots from a Toronto house, and they proved far from satisfactory.—(W. O. Burgess, Queenston, Ont.

I do not know of anyone who has plants of Palmetto asparagus for sale. It would be better to procure seed and grow the plants for yourself. You would then have fresh, strong plants, which you would find much more satisfactory than any you could purchase.

If you succeed in getting true Palmetto seed you should have no difficulty in growing the plants. Seeds should be sown early in the spring in rows, much the same as garden peas are sown. Plants should be ready for permanent planting in one or two years, depending on their rate of growth.

I consider The Horticulturist one of the best papers coming to my address, and cannot afford to be without it. I have been glad to note a steady improvement, and wish the paper could be found in every country home in Canada.—(R. J. Messenger, Bridgetown, N. S.

CAULIFLOWERS AND HOW TO GROW THEM*

R. BRODIE, WESTMOUNT, QUE.

I HAVE been led to choose this subject by the number of people who ask how to grow this delicious vegetable. In growing cauliflowers successfully the first consideration is the selection of good seed. Cheap seed will generally grow poor cauliflowers.

Varieties of cauliflowers that may do well in the moist, cool climate of England, would be a failure in our warm, dry climate. I have seen some of these varieties grow three feet high without forming a head. A good strain of the Dwarf Erfurt variety is the best suited to our climate. Nearly every large seed house has special strains of the Dwarf Erfurt, named Snowball, Snowstorm, Giltedge, Alabaster, Ideal, etc.; all good, varying a little in earliness.

All farmers should know how to make a hot-bed; a few have small greenhouses. I prefer the hot-bed to start vegetable plants, as those grown in a greenhouse are apt to grow too large and spindly. In choosing a spot for a hot-bed select a place sheltered from the wind and where the glass will get the morning and afternoon sun.

TO OBTAIN AN EARLY CROP.

A good way to have extra early cauliflowers is to sow the Snowball variety the end of February or beginning of March. In about three weeks the plants will be large enough to set out into other hot-beds. Set the plants one foot apart each way. Some growers plant early lettuce between the cauliflower. The lettuce comes into use so much earlier than the latter, it does not interfere with the growth or cultivation of the cauliflower, for the soil needs to be stirred and cultivated round the plants in the hot-beds as well as in the open ground.

For early cauliflower in the open, sow Dwarf Erfurt in a moderately warm hot-bed in the middle of March. Keep the temperature down to between 60 and 70 degrees by lifting the glass an inch or two. In about three weeks set out the plants in other hot-beds three inches apart; some growers set them in two-inch pots plunged in the soil, close together in the hot-bed. These plants should be ready to set out the first week in May, as soon as there is no danger of frost. For summer and autumn, make a seed bed in the open ground. Those who grow large quantities use a garden seed drill. If the black fly is troublesome use road dust or plaster of paris. With two gallons of road dust or plaster add one tablespoonful of paris green, mix thoroughly and dust on the young plants in the morning when the dew is on them.

The soils best suited to cauliflower are black muck, if well drained, black sandy loam, or any soil that will retain the moisture. Avoid light gravely and sandy soil. My Italian neighbor took a field of poor clay soil last spring that had a stunted crop of oats and which had been full of couch grass the previous year. By plowing and grubbing till he got out most of the couch grass, then plowing in manure at the rate of 75 tons to the acre, he had a fairly good crop of cauliflowers this autumn. He is now applying as much more manure, and said to me, "With plenty of manure I can make this field all right," and he is right.

I believe there are some market gardeners in the States who condemn the use of stable manure for growing cauliflowers. These men only use commercial fertilizer. On the other hand, growers around Montreal believe they can beat the world in growing cauliflowers. Our large growers sell their best to the green grocer and butcher, the rest they sell to the pickle factories for $30 to $40 per ton. Some growers sold 50 to 75 tons.

* A paper read at the twelfth annual winter meeting of the Pomological and Fruit Growing Society of the Province of Quebec, held at Ayer's Cliff, Que., Dec. 14 and 15.

If the soil is in a fertile condition it will not require as heavy manuring as if the land is run out and impoverished. Good results can be obtained by using one half stable manure and one half commercial fertilizer. The fertilizer should have an analysis of 10 per cent. phosphoric, 10 per cent. potash, and 5 per cent. ammonia, using 800 to 1,000 pounds per acre along with manure. A good way to apply the fertilizer is to sow one half broadcast. Of the other half put a handful around each plant, but be careful not to touch the plant for fear of injury. The fertilizer around the plant will prevent the cut worm and help prevent the fly that causes the maggot depositing an egg on the stem.

When preparing the land to set out plants be sure and plough deep. Some growers have a drag like a heavy iron rake, attached to the plow, to level the furrows and prepare the land in one operation. Make the rows three inches apart and set the plants 18 inches apart in the row. It is best to have a marker to mark four or five rows at a time. It is always best to set out plants in the afternoon so as to avoid the heat of the morning sun. This is not necessary if the weather is cloudy and threatening rain. If the weather should be dry at the time of setting out the plants it is best to water them.

Cultivate often; never let the soil get baked round the plants. As soon as the head begins to appear it needs to be shaded immediately from the sun. Go over the field every morning and bend the leaves over the head. Sunburnt cauliflowers bring very poor prices. Plants that do not head up before frost should be pulled. Leave all the soil that adheres to the roots and set them up close together in a root house or cellar. In this way I have had cauliflowers right into the New Year. One ounce of seed should produce about 3,000 plants and costs $2 to $5 per ounce.

THE CULTIVATION OF MUSHROOMS

THE United States Department of Agriculture has recently published Farmers' Bulletin No. 204, on "The Cultivation of Mushrooms," by Dr. B. M. Duggar, Professor of Botany in the University of Missouri, Columbia, Mo. In the letter of transmittal Dr. B. T. Galloway, Chief of Bureau of Plant Industry, says: "Under the direction of the Pathologist and Physiologist of this Bureau, Doctor Duggar has been engaged for several years in the investigation of mushroom culture in all its phases, and great advances have been made, especially in the production of purer and better spawns."

On this side of the Atlantic most people are quite unfamiliar with the practical cultivation of mushrooms. The few that are grown here are seldom displayed in the public markets, because they are usually sold to special customers in advance, and at what may be considered very fancy prices. Indeed, it is hard to understand, considering the prevailing prices, why mushrooms are not grown in greater quantity. Some idea of the magnitude of the industry around Paris, France, may be obtained from the figures given in the bulletin. In 1898, 3,960,000 pounds of mushrooms passed through Central Market of Paris, while in 1901 the quantity was more than double this, 9,680,000 pounds. It is not so stated in the bulletin, but it is known that about two-thirds of the French crop is preserved and exported to American countries.

Persons who grow mushrooms have three fundamental conditions to observe: (1) Character of the spawn used, (2) proper composting of the manure, and (3) control of the temperature and moisture of the beds. All these points are discussed by the bulletin in a simple practical way.

That part of the bulletin which will most interest practical mushroom growers is the announcement of new and improved methods of spawn growing. Two methods of securing the coveted "virgin spawn" are described. The first is the artificial germination of spores. By this method one will be able to select spores from particular mushrooms, which by constant selection may give superior varieties. Another line of development discovered by Dr. Duggar yielded even better results than the Sporeculture process. It may be termed the "Tissue Culture" method. This method is comparable to the use of "Cuttings," as practised by the nurseryman in propagating superior sorts of fruits, and its use in growing mushrooms has been marked by the same improved results. This process renders it possible to select mushrooms of a given character, or to select toward a given end, with the same certainty growers may select the seed of other crops commercially grown.

THE CULTURE OF POTATOES *

W. T. MACOUN, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

THE potato is one of the most important food products of Canada and one of the commonest articles of diet. In the province of Quebec alone, when the census of 1901 was taken, there were 127,205 acres devoted to this crop, producing 127,135,739 bushels, or about 135 bushels per acre. The potato can be obtained at all seasons of the year, and if properly kept is about as good at one time as at another.

There is no farm crop which will repay good culture as well as the potato nor any of which the crop can be increased so much. A few more bushels per acre may be added to the wheat and oat crop by careful husbandry, and the crop of turnips and mangels may also be slightly increased, but the percentage of increase in all of these is much less than in the potato. The average yield per acre of potatoes for the province of Ontario for the year 1904 was 116 bushels, and for the past 22 years 115 bushels, while in the United States it is under 100 bushels per acre. Yet it has been proven by careful experiment that over 1,000 bushels per acre can be produced. An authentic experiment has shown that from a one-twentieth acre plot potatoes were grown at the rate of 1,061 bushels per acre. At the Central Experimental Farm the greatest yield that we have been able to obtain has been at the rate of 690 bushels marketable potatoes, or a total crop with the unmarketable potatoes of 772 bushels. This was from the old Peachblow; not a desirable variety, on account of deep eyes and inferior quality. One thousand bushels per acre is something to aspire to, and it is to try and make clear to farmers that the crop can be increased very much by proper methods that this paper is presented.

The tubers are not the roots of the potato, but are the tips of swollen underground stems, the eyes being the buds; hence the tubers have little to do with the development of the plant, but the development of the root system of the plant and the consequent development of the top has much to do with the development of the tubers. As heat is very essential in growing potatoes, it is important that the soil should be warm. For this reason, sandy loam and gravelly soils which are naturally well drained have been found the most suitable, but the largest crop will be grown where the soil is naturally moist, but has not too cold a subsoil. As the conservation of moisture is naturally well drained and not very moist soil is very important for the best success of potatoes, every effort should

* Extract from an address delivered at the twelfth annual convention of the Pomological and fruit growing Society of Quebec, held at Ayer's Cliff, December 14-15. The remainder will be published in the spring when most seasonable.

be made to retain it. It is a good plan to have the potato crop follow clover or grass sod, as the sod when turned under forms humus, and the more humus there is in the soil, the more it will retain moisture. This vegetable matter will also help to keep the soil loose, which is another factor in the growing of the crop.

The best method is, if the soil is loamy, to plow early in the spring, so that the sod will be thoroughly rotten, and then use the disc harrow and smoothing harrow thoroughly just before planting. By plowing in the spring, plant food is saved which might be lost by leaching. Stiff soils, which, if possible should not be used for potatoes, may be plowed in the autumn. The looser the soil is at planting time the better the results will usually be. Farmers make a great mistake by manuring heavily for potatoes. A moderate top dressing of barnyard manure of 10 or 15 tons per acre on the sod before plowing is quite sufficient to ensure a good crop if cultivation and spraying are attended to. If these are neglected heavy manuring is of little avail. I believe thorough cultivation to be more important than manuring.

Very satisfactory results have been obtained at the Central Experimental Farm by having the potatoes follow a root crop which was well manured and by not applying any manure direct to the crop. Manuring in the rows induces scab and should be avoided. The time of planting will vary according to the district, but the best time to plant for a main crop is about a week before the danger of frost is past, the object being to have the potatoes come up just about when danger of frost is over. From the middle to the 24th of May is a good time. In 1902 in a test made of planting potatoes at different dates an early variety planted on May 15 yielded at the rate of 294 bushels per acre, and when planted on May 29 of only 217 bushels, a difference of 77 bushels in favor of May 15. A late variety yielded at the rate of 459 bushels per acre when planted May 15, and 411 bushels when planted May 29, a difference of 47 bushels in favor of the earlier planting. Potatoes planted on May 1 did not yield as well as those planted on the 15th, the soil probably being too cold. The longer the plants are growing before blight appears the better the crop is likely to be. For an early crop the seed can be planted earlier and some risk taken. Anything which retards the growth of the plant lessens the crop, hence danger from frost should be avoided for the main crop.

In 1904 there were 73 varieties tested at Ottawa under as nearly uniform conditions as possible. The most productive variety was the Vermont Gold Coin, which yielded at the rate of 554 bushels per acre, and Morgan's Seedling, which produced 514 bushels. Both were new varieties. The third most productive variety, and one which we have been recommending for several years, was the Carman No. 1, which yielded at the rate of 501 bushels per acre. Three of the least productive varieties were Early Andes, 123 bushels; Bliss Triumph, 127 bushels, and Bovee, 180 bushels, or 431 bushels per acre more from the heaviest yielding variety than from the lightest cropper. These great differences are obtained every year, showing the importance of trying different kinds. Some of the best varieties are distributed free from the Central Experimental Farm, Ottawa, in 3 pound samples.

The 12 varieties which have averaged best at Ottawa for the past five years, with their yields per acre, are:

	Bush.	Color.
1. Late Puritan	485	White.
2. Barnaby Mammoth	483	Pink and white.
3. Money Maker	482	White.
4. Flemish Beauty	467	Pink.
5. Carman No. 1	459	White.
6. Dreer's Standard	458	White.
7. Sabean's Elephant	454	White.
8. Canadian Beauty	452	Pink and white.
9. Rural Blush	437	Pink.
10. I. X. L.	433	Pink and white.
11. Clay Rose	432	Pink.
12. Irish Cobbler	432	White.

An Established Industry

S. WARD KENNEDY, LEAMINGTON, ONT.

EARLY vegetable growing in Essex county is an established industry. It has been proven to be extremely profitable by some well-known growers. The work is on a satisfactory basis and will warrant a considerable increase, but I do not believe in exceptional cases of success being cited to mislead the public. There is considerable risk in the work, and those not understanding the raising of plants under glass can easily lose a great deal of money.

Hot air, hot water and steam have been tested for heating greenhouses and the results have been published. All have proved practically successful if rightly installed, the choice resting with the amount of glass and sash at one's disposal. It is possible useful experiments might be carried on to determine whether to plant seeds early to grow slowly; or to plant later, thereby saving fuel, and growing them a little faster. Should plants be fed quite heavily, in the greenhouse, with nitrogen, phosphoric acid, and potash is a point on which there is some doubt, and experiments might be carried on in the field to determine how much fertilizer or fertilizers can be used profitably with regards to ripening, as a difference of 10 to 14 days is often the difference between profit and loss.

The Cabbage Black Rot Germ

THE Vitality of the Cabbage Black Rot Germ on Cabbage Seed, is the title of a bulletin recently issued by Messrs. H. A. Harding, F. C. Stewart and M. J. Prucha, of the New York Agricultural Experiment Station. Black rot of cabbage is a distinctive bacterial disease for which no satisfactory method of controlling it in the field has yet been found. Concerning the ability of the disease germs to survive the winter on the seed, there has been a difference of opinion. The bulletin gives an account of some investigations bearing on this point.

The conclusion is that much of the cabbage seed on the market is contaminated with germs of the black rot disease and that some of these germs may survive the winter and become a source of infection to the young cabbage plants. As a precautionary measure, it is advised that all cabbage seed be disinfected before sowing, by soaking for 15 minutes in a 1-1000 corrosive sublimate solution or in formalin, one pound to 30 gallons. It is not expected that this treatment will prevent either leaf or root infection in infected soils; but it may be safely relied on to prevent all danger from infected seed. It will not injure the germination.

Rev. Father A. E. Burke

The success of the ninth annual convention of the Prince Edward Island Fruit Growers Association, held Dec. 20 and 21, at Charlottown, P.E.I., and described in this issue, was due in a large measure to the energetic and capable efforts of the president, Rev. Father A. E. Burke, of Alberton, P.E.I., who is well known to readers of The Horticulturist.

Send us a card if you are not receiving The Horticulturist regularly. We will attend to it.

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

H. Bronson Cowan, Editor and Business Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advances entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of it, report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

That its readers will succeed in keeping all their New Year resolutions and thereby make 1905 the happiest year they have ever known, is the hearty wish of The Canadian Horticulturist.

THE FRUIT DIVISION.

The great majority of fruit growers are unanimous that the Dominion Fruit Division should be continued as a separate division and not amalgamated with the dairy division. The Prince Edward Island Fruit Growers' Association, at its annual convention last month, unanimously carried a resolution condemning the proposal to place the fruit division under the control of the chief of the dairy division. Ontario fruit growers are opposed to the proposed move as is evidenced by the interviews with leading growers published in this issue. As it has only lately become known that such action was under consideration, fruit growers generally have not had time to give expression to their views. Enough growers, however, have been heard from to show there will be bitter opposition to any action which is likely to curtail the work of the Fruit Division. Should the two divisions be united, fruit growers have expressed a determination to immediately endeavor to have the divisions separated again at the earliest possible moment.

This feeling is not the result of any objection to Mr. J. A. Ruddick, the chief of the Dairy Division. The fact is very few growers are acquainted with Mr. Ruddick or his work. The general feeling is that the fruit interests are of sufficient importance to require a division of their own and that the head of that division should not be forced to consult with the head of another division, but that he should be subordinate only to the Hon. Sydney Fisher, Minister of Agriculture.

AN UNSATISFACTORY METHOD.

Did any person ever know of a wholesale merchant forwarding supplies to retail firms with a request that they sell the goods to the best advantage and, after deducting the customary commission, return the balance of the proceeds to him? Has a business man been heard of who was willing to ship his season's stock of goods hundreds of miles to be sold by utter strangers with the right to make their own returns? Such a person would not be called a business man.

Fruit growers are an intelligent class of men and yet this is what hundreds of them do every year. While the weakness of this method has long been apparent the matter has never been brought home more forcibly than during the past six weeks. The statement was made by Mr. Robert Thompson, of St. Catharines, at the recent Ontario Fruit Growers' convention, that while in Winnipeg last fall he found cases where the commission men had reported to Ontario growers that their fruit had sold for considerably less than had actually been the case. Not having any proof to the contrary the growers had been forced to accept payment on the basis of the prices quoted by the commission men.

Following this has come the announcement from Boston that a coterie in England has systematically banded together for several years to secure the product of Canadian and United States apple growers for little or nothing. Fruit sold at public auctions is bought in by these parties and resold at much higher prices. The growers who consigned the fruit receive their returns on the basis of the prices realized for the fruit at the public auctions. It is necessary that steps shall be taken to prevent fraud of this kind. In England the Canadian Commissioner should take this matter up. Our Canadian commercial agents should also watch to see that the interests of Canadian growers are safeguarded. In Canada it has been suggested that commission merchants should be placed under Dominion regulations. The Canadian Horticulturist would like to receive suggestions from growers as to what they believe should be done.

THE VEGETABLE GROWERS.

What are the hundreds of vegetable growers in Canada doing? Have they a Dominion organization or provincial associations of any kind. If not, why not? If they have what are they doing?

There is no department in The Horticulturist for which it is more difficult to obtain live, in-

teresting information than the vegetable section. This department should be one of the strongest. Vegetable growers should be as well organized and should hold as many meetings and conventions as the fruit growers and florists. Speak up, vegetable growers, and let us know what you are doing.

FROM FAR AND NEAR.

If the good that is done by The Horticulturist as it goes forth every month, is in comparison to the territory covered, it does indeed fulfil its mission to the very full. During the past month subscriptions and renewals have been received from Finland, South Africa, Tasmania, Switzerland, and Belgium, with one as far south in the United States as Georgia.

Our advertising columns are sought by firms as far away as Mexico, one firm sending us an advertisement from that country, which appears for the first time in this issue. Truly does Spakespeare say, "How far doth the little candle throw its beams, so shines a good deed in a naughty world." This does not necessarily mean that we consider the world not what it should be.

It has been the custom in New England and in several of the other eastern states, for a few years past, to place on the door of a house, at the time of death in a family, a wreath or bouquet of flowers. In the case of the death of an infant this sign of mourning is of smaller dimensions and consists of small white flowers. For older persons larger bouquets are used, or mere bunches of loose flowers tied with white ribbons. An excellent emblem often used is a wreath of ivy leaves, or a sheaf of wheat tied with white ribbon. These floral emblems are much less gruesome than the customary crape or ribbon decoration furnished by the undertaker. Would it not be a good idea to adopt this custom in Canada ?

Horticultural societies when planning their work for 1905 should arrange to subscribe for The Canadian Horticulturist for all their members. Many societies do this every year and more should. The Horticulturist can help the societies and the societies can help The Horticulturist. Officers of societies should bear in mind that The Horticulturist is the only horticultural magazine published in Canada and that it is the equal of any of the kind published in the United States.

The Quebec, Nova Scotia and Prince Edward Island Fruit Growers' Associations held successful conventions last month. Let us unite in a hearty wish that the convention to be held this month by our British Columbia brothers will be the best of all.

I greatly enjoy The Canadian Horticulturist and think it very instructive to fruit growers. —(A. N. Ball, Port Hope, Ont.

Prince Edward Island Fruit Growers

(Continued from page 6.)

The exhibition of fruit was a surprise to every one, as all past exhibits at meetings of the association were eclipsed by this one. Fully 500 plates of Island fruit were shown, in addition to which were the provincial collections from Nova Scotia, Ontario and British Columbia, shown by the Dominion Fruit Division ; a large number of varieties from the Experimental Farm, Nappan, and a splendid exhibit of boxes and barrels. The visitors from Ontario admitted that with the exception of the recent fruit show at Toronto the exhibit of fruit at Charlottetown was equal to any that has been held in recent years in connection with the Ontario Fruit Growers' Association.

The great adaptability of the different parts of the Island for growing apples was demonstrated, both the eastern and western parts of the province being well represented. Kings county, which has in the past taken a large proportion of the prizes, was beaten in the county collection class by Princes county, which exhibited a fine lot of well grown fruit.

One could not but notice the varieties which are succeeding best on the Island, by the large number of plates which were in competition and by the color and maturity of the fruit. Among these King, Spy, Ben Davis, Alexander and Gravenstein would certainly rank highest. The competition in Kings was very keen, the fruit being well matured and highly colored. A large number of plates of Spy were shown, and while the color of these was not as high as the King, the fruit was clean and well grown. Ben Davis is a great favorite on the Island. There was a large number of plates of Alexander. This variety succeeds especially well on the Island. The Gravenstein were in prime condition. Some fine plates of Baxter, Bishop Pippin, Mann, Ontario, Ribston Pippin, Blenheim Pippin, Stark, Wagener and Wealthy were shown, all of which varieties do well on the Island. Baldwins and Greenings were not so good, and it is doubtful if the former, especially, will prove a profitable commercial apple.

The exhibit of fruit in boxes and barrels was good. The Gravenstein took first prize in boxes, and the King in barrels. The Baxter is an apple which is succeeding admirably on the island and is proving a profitable variety with those who grow it. The Dodd apple appears to be a winter sort well worth looking after, as the specimens shown at the exhibition were of fine color and good quality, and it is a variety which has been tested for many years on the Island. On the whole this Fruit Growers' meeting was an inspiration to stranger and Island folk alike, a striking testimony to the president and an augury of the triumphant success of horticulture in the garden of Canada.

Have just read the December issue of The Horticulturist. It is brimful of interest. My congratulations and best wishes for future success.—(J. C. Chapais, St. Denis, Que.

THE WINNIPEG FRUIT MARKET

During the recent shipping season a number of leading Ontario fruit growers were at a loss to know whether or not to ship fruit to Winnipeg. Commission firms, which have been established in Winnipeg for many years, would write, discouraging shipments, while in the same mail letters would be received from other firms asking for consignments.

The disturbing factor on the market appeared to be the branch of the Ottawa Fruit & Produce Exchange, recently established in Winnipeg. This concern was apparently fighting for the field against the old firms.

Desiring to locate the trouble, if possible, The Horticulturist wrote to a number of leading Winnipeg commission dealers for information concerning that market. The following reply has been received from one of the best known firms in that city with a request that the name of the firm should not be published.

SELLS FRUIT BY AUCTION.

The Ottawa Fruit & Produce Exchange is a competitor of ours only in a different way. The Exchange puts the goods up by auction and sells them, regardless of cost and value, to the highest bidder. They have men throughout the country soliciting orders and no doubt get a good many fresh shippers, but it is very doubtful if any of the shippers will be satisfied, or, if they are satisfied, they are easy to please.

The Exchange is run under the direction of G. W. Hunt, of Ottawa. I will give you a few of the prices that it realized here for fruit. When we were paying shippers $1.75 for Duchess apples in Ontario (the freight all rail is practically $1 per barrel) Mr. Hunt sold his XX for $1.55 to $1.75 per barrel and XXX for $2.25 to $2.65. Tomatoes in baskets were sold for 30c to 50c per basket and pears for 40c to 75c. They came by express. We were not handling any of those goods, but we understood from the representative of Griffith & Woolverton, of Grimsby, that they were paying in the east 40 to 60 cents for tomatoes and the same for pears. Mr. Hunt last spring handled a few cars of oranges from California for which the growers did not realize more than 30 to 50 cents a box.

I point out a few of these things just to demonstrate that this city is not ready for auction fruit. If it is ready, we are prepared to go out and solicit fruit, sell it by auction and do the same kind of business as the Ottawa Fruit & Produce Exchange does, if the growers want it in that way, but we think they will soon become tired of it because fruit has a cost, and it must cost the growers something. Peaches and plums from Ontario will not carry here; apples, grapes, tomatoes and basket pears find a ready market for a limited amount.

THE OTTAWA FRUIT AND PRODUCE EXCHANGE.

The following statement was received from Mr. Wm. Borthwick, manager at Winnipeg for The Ottawa Fruit & Produce Exchange :

We opened business in Winnipeg, March 1 last, with the object of doing a strictly commission business. On account of the large number of orders we have had from dealers in other towns outside of Winnipeg, we have been obliged, in order to fill some of these orders, to buy small lots of goods. At least 90 per cent. of the goods we have handled have been on a strictly commission basis.

Our goods are all sold by auction as soon as, or as quickly as possible after they arrive. Our sales have been well patronized, from the time we commenced business, by the best dealers of this city and the surrounding country, and the attendance has steadily increased until the premises, which seemed large when we first began, are entirely too small.

Our terms to those who buy our goods are strictly cash, and for those who consign goods to be sold we charge 10 per cent. commission and pay every Monday for goods sold the previous week up to Saturday night. The best evidence I can give that we are getting the best price going for the goods is the fact that nearly every person who has come up here lately with fruit to sell has handed their goods over to us to dispose of.

With regard to Ontario fruit I have been surprised to find that there has been such a prejudice worked up against it, but I have no doubt that, with better transportation facilities and a little care on the part of the grower, Ontario will soon control the fruit supply of this market. There is great need for improvement in the matter of transportation, especially with the express company, for the facilities furnished by them and the manner in which goods are handled here would not be tolerated in the east for one day.

Packing Apples in Boxes.

J. B. THOMAS, LONDON, ENG.

There has been a good deal said about packing in boxes, but I cannot advise the use of this style of package, although in seasons of scarcity it might be adopted with some chance of success. When, some years ago, I suggested the advantage of packing in boxes I had in mind the manner and style of packing adopted in the case of Californian Newtons. I have since observed the Canadian attempts at packing in boxes and, with very few exceptions, I may say that the less we see of such boxes and such packing the better for those interested in shipping apples from Canada. At present I must urge packing in barrels only, as this style of package is best known here and best understood in Canada.

Has Been Disappointing.—Taking everything into consideration the quality of the Canadian fruit this year has been very secondary. This has occasioned much disappointment to importers, who from early reports expected to see a crop of fine fruit.—(Clark & Sinclair, Dundee, Scotland.

Success to your excellent Horticulturist.—(R. S. Hood, Galt, Ont.

THE NIAGARA DISTRICT FRUIT GROWERS

The Niagara Peninsula United Fruit Growers' Association held a profitable meeting in St. Catharines about the middle of December. The president, Mr. C. M. Honsberger, presided, and a large number of members were present. The following were elected officers for the coming year: President, C. M. Honsberger, Jordan Station. Vice-presidents, Joseph Tweedle, Stoney Creek; A. Muir, Niagara Township; A. Railton, Fonthill. Secretary-treasurer, Carl E. Fisher, St. Catharines. Executive committee—F. Pay, W. C. McCalla, W. H. Bunting, St. Catharines; Robert Thompson, W. H. Lee, Geo. A. Robertson, Alfred Griffin, Grantham; F. A. Goring, Major James Hiscott, Isaac Usher, Niagara; Thomas Berriman, Stamford; E. Morden, Niagara Falls South; Wm. M. Hendershot, Thorold; S. H. Rittenhouse, Jordan Harbor; Andrew Haynes, Camby Wismer, Louth; Rev. W. J. Andrews, S. M. Culp, Beamsville; A. H. Pettit, C. W. Vanduser, Grimsby; M. Pettit, J. W. Smith, Egbert Smith, Winona; Erland Lee, Stoney Creek.

A comprehensive and instructive report was presented by Mr. Robert Thompson on the results of the investigations into the San Jose scale. Most of this information has already appeared in The Horticulturist. Mr. W. H. Bunting, of St. Catharines, stated he thought the experiments made bore out the results obtained by tests of a similar nature carried on in other parts of the continent. He stated that the McBain mixture has been used with good results, but for smaller orchards he thought lime and sulphur the more applicable.

On motion it was decided not to ask the government for further aid in supplying material for experiments. This action was objected to by Mr. Murray Pettit, of Winona, who pointed out that the black rot of grapes is causing trouble and that government assistance may prove desirable. Mr. Pettit moved in amendment that the government be requested to continue its aid. This amendment brought out a lively discussion, but was finally withdrawn and the resolution to adopt the report carried. A committee of some of the most prominent growers was appointed to interview the government and request that assistance be granted in fighting other blights which threatened the fruit crop of the district.

A lively address on Cooperation was given by Prof. Reynolds, of Guelph, who presented a resume of the results of trial shipments of fruit to the west. An account of these shipments has already been presented in The Horticulturist. In closing, Prof. Reynolds stated that the obstacles to a trade with Manitoba and the Northwest are:

First, Ontario fruits are not of good shipping quality. Second, transportation is not satisfactory. Third, markets are uncertain and commission men and others who handle our fruits do not always give satisfactory returns.

The various difficulties in the way of establishing this business can be overcome for the average fruit grower in no other way than by cooperation. Cooperation will give the fruit growers strength to deal with the railway companies, to compel from the latter proper regard for their rights, and, furthermore, the added business which would result from cooperation would make it appear to the railways more and more worth while to give the matter of fruit transportation the attention it will then deserve. An organization will be able to grapple successfully with the problems of marketing, which it is difficult, if not impossible, for the private shipper to do. At the shipping point the cooperative concern could take charge of the selection of the packages, grading, packing and shipping of the fruit, thus relieving the individual fruit grower from the necessity of attending to these exacting details, and giving him time to attend to his legitimate business of producing prime fruit.

Should Take The Horticulturist.

The directors of the Lindsay Horticultural Society offer to their members for 1905 the following advantages:

Each of the first 100 persons (only) who pay the sum of $1 on giving in their name to the secretary, will receive the following collection of choice plants and bulbs for pot culture during the winter: One azalea, two cyclamen, assorted colors, three of the best hyacinths in assorted colors, or one althea, one hibiscus and one perennial larkspur, to be delivered in the spring of 1905. The choice of any of the following journals free, is given: (a) The Canadian Horticulturist, a 52-page illustrated monthly, devoted to fruit, flowers and vegetables. This choice includes membership in the Ontario Fruit Growers' Association, and the combined annual report of the Fruit Growers' Association and the Entomological Society of Ontario, a book worth to those interested in fruits and flowers, more than the membership fee. (b) The Mayflower, a bright, interesting journal devoted to fruit, flowers, birds and other interesting subjects. (c) The Lindsay Watchman-Warder for one year, containing the news of the town and country, with articles interesting to fruit growers and gardeners in general. (d) Success with Flowers, a monthly journal devoted to flower culture.

Work in Grimsby.

During the winter the Grimsby society aims to have discussions on fruits and flowers.. the meetings taking more of a literary character than during the summer, when social sessions are more in order. Members are taking deep interest in flowers, gardens are becoming larger and more beautiful every year, and greater strides will yet be made stimulated by the increased interest and enthusiasm evinced by the members of the society.—(J. W. Brennan, Grimsby Hort'l Society.

Have Bought Barrels.—The Forest Fruit Growers' and Forwarding Association has bought the material for making apple barrels for next season. The barrels will cost the association 26½ cents made up.

HORTICULTURAL SOCIETIES AND THEIR WORK

At the meeting of the delegates from horticultural societies of Ontario, held in Toronto at the time of the Fruit, Flower and Honey Show, interesting descriptions were given, by a number of the delegates, of the lines of work being carried on by their societies.

The secretary of the Hamilton society, Mr. J. M. Dickson, reported that his society made a distribution of aster seeds to over 3,000 school children, with very satisfactory results. At a flower show held in September the flowers brought in by the children were numerous and beautiful, some very fine specimens of asters being exhibited. During 1903 the work of improving lawns, grounds around houses, parks, etc., was undertaken, and in 1904 the competition was more keen than ever. In this work the Hamilton society has been especially successful. Prizes were offered for best kept lawns, rockeries, hanging baskets, window boxes, general improvement, and for keeping places clean. The result has been that where formerly in Hamilton one used to stop and admire a beauty spot of this kind, he now stops and gazes with astonishment at a neglected corner or nook. The fact that the streets and walks in the city have all or nearly all been paved during the past few years has helped greatly to improve the looks of the grounds, and it has left places between streets and houses, where grass or flowers have been planted.

The Work in Cobourg.

The Cobourg society was represented by Major A. J. Snelgrove, who reported that three years ago his society adopted the plan of giving seeds to their members, with very satisfactory results. These seeds were distributed early in the spring. The best aster seeds procurable were obtained and given to the children of both public and separate schools. Instructions were given to the teachers asking them to see that the scholars were shown how to plant and care for the seeds and plants. Prizes were offered for the best specimens of flowers from these seeds. These flowers were exhibited in September and furnished one of the finest flower shows ever held in Coburg.

The prizes consisted of small sums of money, bulbs, seeds and potted plants. This plan of giving seeds and then offering prizes for the flowers grown does really more for the children in the line of Nature work than most other lines of work. The Coburg society is anxious to promote a civic spirit for the development of the public beauty of the town and is succeeding.

Toronto Horticulturists.

The president of the Toronto Horticultural society, Mr. Edward Tyrrell, gave a few remarks concerning his society. No premiums or seeds were given to members last year. Meetings are held every month at which plants in bloom are shown. Certain kinds of plants are allotted so many points of merit. Judges determine how many points each plant has earned. These points are recorded and every point is worth ten cents to the owner of the plant. Some plants score as high as twenty points, others but ten and below. Every one bringing a plant to the meeting has an interest in the meeting and a prize is given appropriate to the value of his plant.

This plan makes it an incentive to the members to strive for the best they can obtain, and has been found to result in much good and to keep up the interest which otherwise is found to lag at certain seasons of the year. The society has 114 members and is in a prosperous condition.

P. G. KEYES, OTTAWA.

Much of the success of the Ottawa Horticultural Society, particularly during the past year has been due to the efforts of the president, Mr. P. G. Keyes, who has been a member of the Society since its organization, sixteen years ago. Mr. Keyes holds an important position in the Department of the Interior. His specialty in horticultural lines is grape culture. For years he has taken the first winnings at the Central Canada Exhibition in the grape sections. The cold climate of Eastern Ontario has not prevented Mr. Keyes making a success of his grapes, and in this respect his winnings have been most remarkable.

What Deseronto Horticulturists Have Done.

The first year of its organization, the Deseronto Horticultural Society followed out the requirements of the Agriculture and Arts Act. The board of directors chose plants which were given to members. This plan, the president Mr. McClew, reported caused much dissatisfaction. Some members wanted bulbs, some plants and some seeds. Each member is now allowed to choose any plant or bulb, as shown in a selected florists' or seedsmens' catalogue, up to a certain price, both for spring and fall distribution. This year the amount stipulated was $1.35 for each member.

The first year the Deseronto society was organized, a flower show was held, and this feature has been continued every year since, with most successful results. Not only have the members been interested, but the town has been improved. Prizes have been given for the best kept grounds, which have added to the interest among members.

Guelph Horticulturists Are Active.

The Guelph society has followed the same lines of work as many other societies in the

giving of seeds, plants, bulbs, etc., to members and school children. One mistake was found to be a detriment to good results, and that was in not obtaining the cooperation of the teachers when giving plants and seeds to the children. Both ways were tried by this society, and the added interest of the teachers adds much to the good results obtained.

This year 400 packages of aster seeds were distributed through the teachers to the children, and when the exhibition of the flowers was held in the fall the teachers, with their classes, were there with 373 entries from the 400 packages of seeds distributed. Nearly every child that took seeds brought something in return. Prizes consisting of hyacinths and narcissus bulbs, tulips, etc., were graded according to the value of the specimens. For the culture of the asters, little two-page pamphlets with cultural directions were distributed Four bulletins were issued by the society during the year. Aside from the distribution to the schools, bulbs for fall planting were given away, as well as plants for spring planting. These latter consisted of sweet peas and rose bushes. Members take a deep interest in the specimens they secure and competition is keen as to who shall grow the finest. Eight meetings were held, at four of which speakers from all over the province spoke.

The Delegates Present.

Among the delegates at the convention were noted the following: Messrs. W. M. Robson, Lindsay; C. W. Schierholtz, Elmira; Major

J. F. WATSON, OTTAWA.

Since 1898 Mr. J. F. Watson has acted as secretary of the Ottawa Horticultural Society, giving much of his time and energy to the work and improvement of the society. As the society has grown rapidly, the duties of secretary have increased in proportion, but Mr. Watson has always been equal to the situation His efforts have been duly appreciated, as is shown by the fact that he has been duly re-elected for six successive years For eleven years he has been employed in the horticultural division of the Experimental Farm, and for five years was superintendent of horticulture at the Central Canada Exhibition. There is no more popular or hard working officer connected with the Ottawa Horticultural Society.

Snelgrove, Coburg; D. McClew, Deseronto; John Cape, Hamilton; A. K. Goodman, Cayuga; J. Cavers, Oakville; Jas. J. Scarff, Woodstock; R. B. Whyte, Ottawa; W. T. Macoun, Ottawa; H. L. Hutt, Guelph; Allan Cameron, Owen Sound; J. W. Brennan, Grimsby; Edward Tyrrell, Toronto; Miss J. S. Campbell and Miss J. Douglas, St. Catharines; David Rife and Edward Gurney, Hespeler; J. Evans, Randolph; G. M. Hill, Fruitland; Alex. T. Armstrong, Millbrook; John McLaren, Orangeville; J. O. McCulloch and J. M. Dickson, Hamilton; Jas. Symington, Port Dover; Allan McNeillage, Eberts; E. E. Adams, Leamington; John Aikin, Sarnia; C. Firth, Durham; S. E. Wedden and W. C. Reid, Belleville; Robert Hamilton, Grenville, Que.; J. C. Chapais, St. Denis, Que.; Roderick Cameron, Niagara Falls, and H. H. Groff, Simcoe.

Ottawa a Progressive Example

It has already been made known through The Horticulturist, the good work being done by the Ottawa Horticultural Society. Monthly meetings are held throughout the year. Lectures are given at each of these meetings by capable speakers. During the past two years bulletins have been issued, the one this year on Bulbs receiving general commendation. The society considers it a wise plan to give plants and seeds, and then ask the members for their experience with the same. Cannas, geraniums and perennials are usually given and the money is considered well spent.

Some inducement must be offered to the greater mass of people in general to have them take an interest in the matter. It costs the Ottawa society about $3 a year per member for the plants, etc., given them. The society has 246 members, which large number is partially accounted for by the giving away of these plants every year. The society starts work for 1905 with a balance in the treasury of $28, and considers itself stronger and better than ever before since organization. Much good has been done the city of Ottawa by its horticultural society. The standard of flowers, and all pertaining to horticulture has been raised, and the people taught to look on them as a necessity rather than a luxury. At the exhibition held this year there were 900 entries.

Notice to Subscribers

Several thousand readers of The Canadian Horticulturist are members of horticultural societies. The subscriptions of these readers expired with the December issue and they have been sent copies of the January issue in the hope that they will continue to be members throughout 1905. Members of societies who desire to receive The Horticulturist regularly should renew their membership in their local horticultural societies immediately as otherwise their subscriptions will be discontinued with the February issue. The Horticulturist has been greatly improved during the past year and will be further improved this year. The management hopes that all its readers will continue as regular subscribers during 1905.

New Work for Fruit Experimenters

At a meeting of the Board of Control of the Fruit Experiment Stations held recently at Guelph, several very important decisions were arrived at which, it is hoped, will lead to even more valuable reports being received from the stations than in the past. As a result of the disasters which again overtook the peach growers in Essex, due to the extreme winter, the Board decided that something should be done at once to assist those who desired to replant.

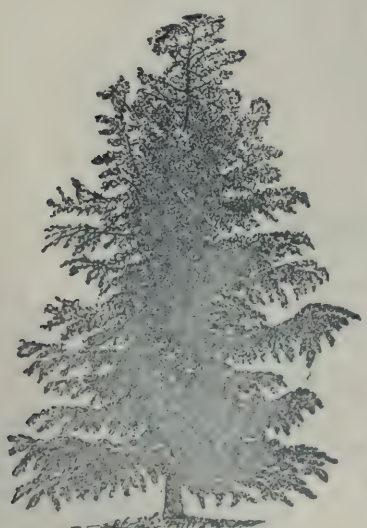
It was felt that the use of cover crops should be encouraged, and their effect on freezing of the soil, ripening of wood growth, etc., thoroughly tested. With this object in view five acres at the Essex Experiment Station, on the farm of Mr. W. W. Hillborn, will be set out this spring with about ten of the best varieties of peaches for that district in lots of 100 of each variety. Extensive experiments will be carried out to find the value of the hairy vetch, crimson and red clover, rye, etc., as cover crops. An additional test as to hardiness of plum roots for peach trees will be carried on by having ten trees of each variety budded to plum stock.

The Essex district is one of the best fruit sections of Ontario and it is hoped that some definite results may follow these experiments at Mr. Hillborn's. The peach industry there received a decided set back by last winter's

"Canadian Plants for Canadian People"

Our complete spring catalogue of Plants, Shrubs, Seeds, Etc., will be out in March. Be sure that you get a copy.

THE WEBSTER FLORAL COMPANY, LIMITED
HAMILTON, - CANADA
(SUCCESSORS TO WEBSTER BROS.)



EUROPEAN LARCH.

TREES

You want the best. Nothing short of the best pays you to plant. Where will you be sure to get the best

TREES, PLANTS, VINES

Fruit and Ornamental?

—AT —

E. D. SMITH'S

WINONA, ONT.

Write for New Catalogue.

Finest Stock of **Apple Trees** on Earth.

☞Salesmen Wanted.

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

freeze, and the Board could not make a better move than they are thus doing through this station to re-establish the confidence of the growers.

It has been felt that the stations have carried on tests of several of our most important fruits for a sufficient length of time (over 10 years in most cases) to be able to speak with authority for their several districts. Last year, as a result of these tests, a partial list was prepared and published in the annual report showing the most valuable varieties of apples for Ontario. All of the stations will now be supplied with a compete set of these recommended varieties and many of the poor varieties will be destroyed or top-grafted as being unworthy of further test. While the stations will still specialize as in the past, it is hoped that each experimenter will have a small collection of the standard varieties of each fruit as recommended by the Board. so as to know from experience their adaptability in his own district.

WILL TEST FRUIT IN NEW ONTARIO.

The Board is arranging to send several farmers in the Temiscamingue and New Liskeard districts a collection of small fruits and some of the hardier trees for trial. The conditions of soil and climate in these new and promising sections of Ontario have been found to be so varied it was thought better to conduct experiments in several portions of the country till more definite information as to the existing agricultural conditions can be obtained. From specimens of fruit, both wild and cultivated, which have been grown there, the Department of Agriculture hopes that many of our hardier varieties of tree fruits, and most of the small fruits, will be found to succeed with proper care.

During 1905 two exhibits will be made, one at the Canadian National Exhibition in September, and the other at the Provincial Fruit, Flower and Honey Show in November. The former will be largely shown in commercial packages and should be an object lesson not only to the fruit grower, but also to the consumer. An interesting collection of injurious insects and fungi will also be shown in connection with both exhibitions.

Nova Scotia Fruit Growers Are Wide Awake

(Continued from page 7.)

An interesting discussion was led by Mr. W. H. Woodsworth, of Berwick, on "Conservation of Soil Moisture." Questions were asked and answered by Messrs. McNeill and Fletcher. Considerable attention was given to root killing, and many different opinions were expressed. "The London Markets," was the subject of an interesting paper by Mr. Freeman Fitch. His report was a brief but comprehensive one, showing the advantages and disadvantages of the fruit growers in the London market, with its wonderful amount of business. The proper insurance of shipments was discussed and many questions asked were answered by Mr. Fitch.

An address by Captain C. O. Allan, on Marine Insurance, proved valuable. Information was

Ask your Grocer for

Windsor Salt

Best for Table Use.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY

Drawings made to a scale, so that any gardener can carry them out. Correspondence solicited.

FRUIT GROWERS and FARMERS

The Southern Fruit Grower is the best, most practical fruit paper to read. 24 to 40 pages every month. 40c a year. Send 10c and 10 names of fruit growers and get the paper 6 mos. on trial. Sample free. Southern Fruit Grower, Box 10, Chattanooga, Tenn

MARCHMENT'S
SURE GROWTH COMPOST

Best manure in the country. Supplied by car or boat, at reasonable prices.

S. W. Marchment, 105 Victoria Street TORONTO
Tel. Main 2841. Established 1872.

FLOWER POTS

ROSE JARS and
FANCY WARE

MAY BE HAD FROM

DAVISVILLE POTTERIES

John Davis & Sons

Davisville P.O., Ont.

Protect Your Trees with

AMERICAN TREE PAINT

Guaranteed to prevent injury to trees by rabbits, mice, moles, borers, etc. Spreads well, looks beautiful and stand the weather. Best and cheapest Tree Protector on the market. 50c and $1 per box. Write at once for circulars, testimonials, terms to agents and free sample.

We pay freight.

AMERICAN TREE PAINT CO.
FREEMANSBURG, PA.
Dept. 10.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

given about the shipment of apples by the steamer Loyalist, in which Nova Scotia growers had shipped 20,000 barrels of apples (the Furness, Withy line) and which were lost. The insurance on the apples was paid and the company proved equal to the best on the continent.

Many were interested in listening to Mr. R. W. Starr, who spoke on "Impressions of Ontario Fruit and Fruit Growers." The speaker when in Ontario found Ontario apples were well colored and learned that this was on account of their being left on the trees as long as possible before frost came.

A DOMINION ASSOCIATION.

References were made to packing fruit by A. McNeill, Chief of the Fruit Division at Ottawa. Regarding the formation of a Maritime Fruit Growers' Association, Mr. McNeill thought it advisable to have a Dominion Association in order to give fruit growers more influence with the government.

Spraying was discussed by Dr. Fletcher, of the Experimental Farm, Ottawa. Discussions followed, in which Mr. McNeill, Dr. Fletcher, G. H. Vroom and others participated. The concensus of opinion was that spraying done in a thorough manner either once, twice or three times during the year, to suit local conditions, brought the best results.

At one of the evening sessions, Secretary of Agriculture, Mr. B. W. Chipman, traced the development of fruit growing in Nova Scotia during the past 50 years. Last year the superintendent of agriculture sent fruit to the Crystal Palace exhibit at London which received the highest praise. The exhibit of 82 varieties, grown on one farm in King's county, was an eye opener to the English people. Nova Scotia holds first place among all apples from abroad. The speaker traced the increase in the value of apples from 1867 to the present time. The fruit growers of Nova Scotia feel greatly encouraged as a result of the convention.

Advertisers Read This.—I see very few advertisements in The Horticulturist along the line of fruit growers' seasonable wants, such as fruit baskets, fruit boxes, barrel staves, hoops and headings, and where they are made, unleached wood ashes, fence posts, and many other things fruit growers need. There is no time in the busy season for us to purchase these articles, and we would like to order them at this season in advance. I would also like to draw attention to the reports circulated during the months of July and August last by foreign dealers as to the probable large yield of apples for export and the actual results in comparison to other years.—(A. H., Grimsby, Ont.

I am very well pleased with The Canadian Horticulturist. It handles the subjects I am interested in.—(H. Rutherford, Long Island, N. Y.

The December number of The Canadian Horticulturist is by far the best number that has ever been issued.—(J. Cavers, Oakville, Ont.

THE WAGGONER LADDER

Quality of Fruit depends largely on proper pruning. To do this, you require one of our Extension Ladders. Look for our advertisement on cover of February and March issues of this Journal or send for free circulars and prices.

The WAGGONER LADDER CO., Limited
LONDON, ONT.

FRUIT GROWERS and FARMERS
The Southern Fruit Grower is the best, most practical fruit paper to read 24 to 40 pages every month .50c a year. Send 10c and 10 names of fruit growers and get the paper 6 mos. on trial. Sample free. Southern Fruit Grower, Box 10, Chattanooga Tenn.

CRAZE & GOODWIN
Fruit Brokers
MANCHESTER

Shippers of Apples to England are invited to correspond with us.
Central Market for nearly **Seven Million** people. Consignments accepted for all English ports.
Highest References.
Cablegrams, "**Campania, Manchester.**"

Practice with Science

DO NOT
BUY
FERTILIZER
BEFORE HAVING
COMMUNICATED WITH

G. W. C. ARNOTT, F. C. S., F. R. C. I. ETC.

Memb. Am. Chem. Soc.;
Memb. Soc. Chem., Ind.;
Memb. Royal Agr. Soc. of Eng.

AGRICULTURAL CHEMIST and EXPERT in FERTILIZERS.

114 VICTORIA ST., TORONTO, ONT.

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

A crop that pays may not pay as well as it should.

Potash

is a plant food which all crops must have. Without sufficient Potash to feed upon no crop can reach that point where it pays *best*.

Experiments have demonstrated the value of Potash.

We will send free, to any farmer who will write for it, a little book that will give facts in full.

GERMAN KALI WORKS
93 Nassau Street, New York.

Canadian Fruit at the London Fall Exhibitions

The Canadian fruit was a prominent feature of the Dominion Government exhibits at the Confectioners', Bakers' and Allied Traders', the Grocers' and Allied Traders', and the Dairy Exhibitions, all held at the Royal Agricultural Hall, Islington, N., London, England, last fall.

The fruit exhibit consisted of all the early autumn apples, Yellow Transparent, Red Astrachan, Charlottenthaler, Early Harvest, Brockville Beauty, St. Lawrence, Alexander, Wolf River, Antmann, Duchess, Wealthy, Switzer, Gravenstein, Early Joe, etc., and plums, pears, peaches and grapes, and the far famed Montreal Nutmeg melon.

Besides these natural fruits there was a large collection of fruit put up in fancy jars, in antiseptic fluids. These comprised all the small fruits, strawberries, gooseberries, currants, cherries, etc., with plums, peaches, pears, apples, grapes and tomatoes.

The manner in which this display was made was a great credit to Canada and resulted in a very large number of specific inquiries as to where these fruits could be procured, either from agents in Britain or from the exporters in Canada. The officials in charge gave all information possible, explaining the manner in which goods were packed, dwelling particularly on the advantages of the 40-pound box for extra choice apples, and explaining that all Canadian peaches, pears and grapes are grown in the open air, a fact not generally realized or appreciated in Great Britain.

FIRST-CLASS

NURSERY STOCK

NURSERIES AT

WINONA, GRIMSBY, BEAMSVILLE

C. W. F. CARPENTER,

NURSERYMAN.

WINONA, ONT.

☞ Salesmen Wanted.

If you want to get the biggest returns for your labor and your ground, you can't afford to plant anything but

FERRY'S SEEDS

—the standard after 49 years' test. They always produce the largest and surest crops. All dealers sell them. Our 1905 Seed Annual free on request.

D. M. FERRY & CO.
WINDSOR, ONT.

A GIFT OF $10.00

Will be given the reader who buys goods to the greatest value on or before **Feb. 15th, 1905** from the advertisers in this month's issue of The Horticulturist. - - -

Readers must notify advertisers that they saw their advertisement in this paper.

When applying for the $10 bonus, they must inform this office of the name or names of the advertisers they dealt with, and the value of the goods they purchased from each.

Application for this bonus must be made to this office on or before **Feb. 18th, 1905.**

Address,

ADVERTISING MANAGER,
The Canadian Horticulturist, TORONTO, ONT.

SPRAY for scale with the **Wallace Sprayers.** No expense for power

WALLACE MACHY CO., CHAMPAIGN, ILL.

Fruit Growers

AND FARMERS

Thousands of the best fruit growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free.

THE SOUTHERN FRUIT GROWER, Box 10, Chattanooga, Tenn.

TEN DOLLARS for the person who buys Goods at the Greatest Value from Advertisers in this Issue. See Notice in Advertising Colums.

Simmers'

Illustrated Seed Catalogue For 1905.

Unlike any other work of its kind. Not only tells what are the best Flower Seeds, Bulbs, Small Fruits, Garden and Farm Seeds, but tells plainly how to get the best results in the growing, whether you plant for pleasure or profit. Many new features this year. It's free.

Address,

J.A.Simmers

Toronto, Ont.

MEXICAN PLANTS *and* SEEDS

We have the largest and finest stock in Mexico of **ORCHIDS, CACTI, AGAVES, Etc.**

Just issued our Beautifull Illustrated and Descriptive Cultural Catalogue; send 10 cents in postage stamps for it. Price List Free.

J. BALME & CO., Horticulturists, Mexico City.

NORTHERN GROWN TREES

Apple, Pear Plum, Cherry, Peach, Nut and Ornamental Trees.
Small Fruits, Roses, Shrubs, cheap.
Mammoth Prolific Dewberry a Specialty.
Send for Free Catalogue. —— It tells the whole story.

J. H WISMER, Nurseryman, Port Elgin Ontario

DOMINION NURSERIES

(ESTABLISHED IN 1860.)

THE SMITH & REED CO.

PROPS.

ST. CATHARINES, ONT.

Those desirous of purchasing **NURSERY STOCK** send for **1905** Catalogue—Just published.

We catalogue this season the earliest market potato ever produced in the United States.

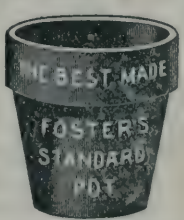
GREGORY'S SEEDS

We catalogue a new drumhead cabbage which in the government test surpassed all varieties found in this Country and Europe. Catalogue free.

J. J. H. GREGORY & SON, Marblehead, Mass.

FLOWER POTS

Strong Porous
Durable and
Light Cheap



THE FOSTER POTTERY CO.

HAMILTON, ONT. LIMITED

Write for Price List and Catalogue.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

THE OLD YEAR GONE

It seems but yesterday, so free from care,
I watched the June-enchanted fern hills wave,
Green as the billows which the deep seas bear;
Bird, leaf and brooklet greeting everywhere
The glory of the breaking summer day.

But, thou art gone! and we have but the same
Stern law of earthly life. Joys vanish fast;
Then sorrow comes, with more enduring flame,
Till o'er life's bridal robes death's pall is cast;
The heart must wait if it would taste at last
Once more the rapture of the days long dead—
Life is so full of storms, and deserts vast,
The heart must bleed ere it is comforted;
The feet must falter ere they reach the door
Which shuts on grief to never open more.

But thou, I know, will come again to me,
Fair Summer, with thy laughter and thy song;
Then 'neath thy smile shall joy more perfect be,
Because for thee my heart has waited long.
Grief now may fill my heart, but hope is strong,
And it shall bloom to joy when thou dost come.
Then let the cold winds rave, my thoughts belong
To thee alone; to them my soul is dumb.
Awake, or when by sleep's sweet sense possessed,
The thought of thee to come shall be my guest.

T. H. RACE.

F. G. BOVYER. JOHN ROBERTSON. A. E. DEWAR, Sec'y. R. R. DICKIE. A. J. McFADYEN.

President, REV. ALFRED E. BURKE, B.D.J.Cn.B. Vice-President, JOHN JOHNSTONE.

JOHN A. ANNEAR. E. BAYFIELD. JOHN NEWSON. F. L. HASZARD. JAS. RAMSAY.

The Canadian Horticulturist

FEBRUARY, 1905

VOLUME XXVIII NUMBER 2

WOOD ASHES ARE A VALUABLE FERTILIZER

PROF. R. HARCOURT, O. A. C., GUELPH, ONT.

WHEN properly applied wood ashes are of great value for increasing both the quantity and quality of the various crops of the farm and garden. Yet, immense quantities of this valuable fertilizer are exported annually from this province. Returns from the Department of Customs, Ottawa, show that during the last calendar year $43,392 worth of ashes were exported from Ontario.

These ashes were probably bought from their original owners for not more than five cents per bushel, when, at the lowest calculation, figuring their value at the market price of the potash and phosphoric acid contained in them, they would be worth fully five or six times that. In addition to this, in the aggregate, tons and tons of ashes are allowed to go to waste through being exposed to the rains.

The three substances specially required by plants to induce a healthy and vigorous growth are: potash, phosphoric acid, and nitrogen. All three substances have their own particular part to perform in the development of the plant, and neither one can take the place of the other.

Nitrogen as a plant food appears to influence more especially the formation of stems, leaves, roots, etc., or, in other words, the growth of the framework of the plant. Potash is necessary for the formation of the woody parts of stems and the pulp of fruits, and is apparently essential to the formation of sugar and starch. The flavor and color of fruits is also credited to potash. Phosphoric acid influences more particularly the maturity of plants, and the production of seed or grain.

The natural plant food of the soil comes from many sources, but chiefly from decaying vegetable matter and the weathering of the mineral matter of the soil. Both these processes are somewhat slow, except under favorable conditions, and both supply potash and phosphoric acid, but only the former supplies nitrogen. Comparatively recently it has been learned that by the growth of certain crops the immense supply of nitrogen in the atmosphere may be drawn on to replace that taken out of the soil by plants, consequently it is only for special crops and under special conditions that nitrogen need be applied to the soil other than as farm yard manure.

In the case of potash and phosphoric acid it is somewhat different. The supply will depend on the nature of the rock from which the soil was formed and on the amount of these constituents returned in the form of manure. Clay soils usually contain large quantities of these ash constituents, the availability of which will depend largely on cultivation, drainage, etc. On

the other hand, sandy and loamy soils are nearly always deficient in potash, and those naturally rich in organic matter, such as swamp soils, also contain little potash.

SOILS WHICH NEED POTASH.

These latter types of soils are those on which market garden and fruit crops are generally grown, crops which are particularly in need of potash, and, as the yield is limited by the constituent of plant food present in smallest quantity, these soils, especially for the kind of crops mentioned, are in need of potash. Further, the quality of the crop, as measured by appearance and palatibility, is affected not only by the nature of the soil, but by the crop being able to obtain from the soil a proper balance of the essential constituents of plant food and in sufficient quantities to permit of a continuous and rapid development.

Wood ashes are one of our natural sources of potash. Clean fresh burned ashes will contain 6 to 35 per cent. of potash, depending on the kind of wood from which they were obtained. They also contain one to two per cent. of phosphoric acid, and about 35 per cent. of lime. Further, the potash is all soluble in water and, therefore, immediately available to plants.

Thousands of acres of land in Ontario are deficient in potash and many of the crops of the farm, especially vegetables and fruits, are in particular need of potash. It seems too bad that wood ashes, which contain such large quantities of potash, and that in the very best form for plants, should be so extensively shipped out of the country.

If some people will continue to sell ashes, let them be advertised in Ontario so that they may be bought by those who know their value, and thus save us the humiliation of having Canada wood ashes advertised for sale throughout the Eastern States of the American Republic, and at the same time keep that at home which we need for good crop production, and which we are now beginning to bring back into the country in other forms.

BLACK KNOT ON PLUMS

PROF. F. C. SEARS, WOLFVILLE, N. S.

WE have conclusively proved that black knot can be controlled, even in the midst of infected orchards, by spraying the trees, cuttting out the knots and burning them. In that part of the experimental orchard which we have had only two years, there were, at the time we leased it, about 40 old plum trees that were so thoroughly infested with knot that it seemed the wisest course to root them out and burn them.

Instead of doing so we cut them back so as to remove all the knots. In removing a knot we cut at least six inches below it so as to remove every trace of the disease. We then gathered up and burned all the trimmings. During that summer the orchard was sprayed three times with Bordeaux mixture, and in the fall the knots were again removed and burned. The trees had made a vigorous growth after their severe pruning, and there were few knots compared with the year before.

The next summer we decided to remove the knots as soon as they appeared, and with this object we went through the orchard twice, once in July and once in August, and cut out the knots. We did this regardless of the fruit on the trees, as our object was to stamp out the disease without considering how much fruit we had to sacrifice. We found that by taking the knots at this stage when they were soft it was often possible to pare off a knot instead of cutting away the entire branch on which it grew.

THE ONTARIO FRUIT EXPERIMENT STATIONS*

REPORT OF THE INSPECTOR, PROF. H. L. HUTT, O. A. C., GUELPH.

THE past year was one of the most trying that Ontario fruit growers have experienced in a long time. The extreme severity of the winter of 1903-4 caused the loss of at least one-third of the fruit trees of the province. This loss was not confined to any particular section, but was more or less general throughout Ontario. On the whole, the Niagara district suffered less than most others, the injury being confined mostly to the loss of fruit-buds. In the Essex district hundreds of acres of peach orchards were destroyed, while plums, cherries, and even apples, were more or less seriously injured.

In northern and central Ontario more than half of the plum and pear trees were winter killed, and many varieties of apples proved too tender. In eastern Ontario apples are the principal tree fruits grown, and the most of these are of the hardier varieties, but in many cases even the so-called hardy varieties were winter killed, particularly where the trees had born heavily the previous season. This fact was evident in all sections; that those trees which were over-loaded in 1903 and consequently were somewhat weakened by the heavy drain upon the vitality of the tree. suffered most severely from the severity of the winter. An excellent example of this was afforded in the orchard of Harold Jones, Maitland, where a dozen or more of his Fameuse trees most heavily loaded in 1903 died in 1904, and one tree, which bore heavily on one side only, is dead upon that side, and so far quite healthy on the other.

On account of the great loss of trees throughout the country there will necessarily be an extra lot of replanting to do next spring. For this reason I have made it a point to get from each of the experimenters a carefully prepared list of the varieties of the different kinds of fruit he would recommend for planting in his section. These lists, coming as they do from men of wide experience in fruit growing, are of particular value to intending planters.

THE SOUTHWESTERN STATION.

This station, which is in charge of Mr. W. W. Hilborn, of Leamington, is in the centre of what has been regarded as the finest peach section in Ontario. Many growers had gone so extensively into peach culture that they had 50 to 100 acres of peach trees in bearing. The first great set back came with the severe winter of 1898 and 1899, when 90 per cent. of the trees were winter killed. Mr. Hilborn at that time had 100 acres of peach trees just nicely bearing, but lost all but four or five acres. Since then he had been replanting till he had about 80 acres in trees. Last winter, however, killed out nearly every peach tree on his place, and I heard it stated that there was probably not ten acres of healthy peach orchard left in all of that district. Mr. Hilborn is not discouraged, however, but would like to plant again a small orchard of the leading varieties for experimental work.

The following is a list of the varieties of peaches, plums and cherries which Mr. Hilborn recommends for planting in his section:

PEACHES: Alexander, Yellow St. John, Brigden, Early Crawford, Fitzgerald, New Prolific, Engol Mammoth, Elberta, Crosby, Kalamazoo, Golden Drop, Banner, and Smock.

PLUMS: Burbank, Satsuma, Bradshaw, Lombard, Monarch, Imperial Gage, and Reine Claude.

CHERRIES: Napoleon Bigarreau, Mercer, Schmidt's Bigarreau, Yellow Spanish, Windsor, Montmorency, and Early Richmond.

* This report was presented to the Board of Control of the Fruit Experiment Stations at the time of the Provincial Fruit Flower and Honey Show.

Since Mr. Hilborn has had to turn his attention to something else than peaches, he has gone largely into the growing of early vegetables, such as cabbage, cucumbers, tomatoes and melons. He says his tomatoes last year paid better than peaches ever did.

THE WENTWORTH STATION.

The fruit to which special attention is being given at this station by Mr. Murray Pettit, of Winona, the experimenter, is grapes, of which he has about 25 acres, including 146 varieties.

The vines set their usual heavy crop, but on account of the cold backward season the fruit was very late in ripening, hardly any of it being fit for display at the time of the Toronto exhibition. Many of the late varieties, in fact, did not ripen at all. The brown and black rot of the grape were much worse last year than ever before in Ontario. In many vineyards, particularly of the Roger varieties, the crop was more than half spoiled. It is important that grape growers should know that both of these forms of rot can be kept in check by thorough spraying with the Bordeaux mixture. If the disease gets a good foot-hold in this country, as it has in many of the grape growing sections of the United States, it will be impossible after a time to get a crop of grapes without thorough spraying.

The results of Mr. Pettit's variety tests are already valuable, for tney show plainly that but very few of many varieties advertised are of value in this country. From among the large number tested the following are recommended as a few of the best: Black—Concord, Worden, Wilder, and Campbell's Early. Red—Lindsey, Delaware, Agawam, and Catawba. White—Niagara and Moore's Diamond.

In addition to his vineyard Mr. Pettit has about 40 acres in orchards, mostly of pears and plums. He has 28 varieties of peaches, 25 of plums, 16 of cherries, 12 of pears, and 6 of apples. Of the other fruits tested Mr. Pettit recommends the following varieties as the most profitable for his section:

PEACHES: Alexander, Greensboro, Yellow St. John, Early Crawford, Elberta, Smithson, and Smock. These are given in their order of ripening, and he would advise planting only a few of the two first mentioned.

PEARS: Gifford, Bartlett, Howell, Duchess, and Anjou.

PLUMS: Bradshaw, Lombard, Grand Duke, Burbank, Yellow Egg, Reine Claude, and Monarch.

CHERRIES: Napoleon Bigarreau, Windsor, Reine Hortense, Black Heart, Early Richmond, and Bossarabian.

THE BURLINGTON STATION.

At this station Mr. Peart, of Freeman, the experimenter, has a large general collection of fruits, made up of 69 varieties of apples, 45 of pears, 50 of plums, 10 of peaches, 8 of cherries, 28 of grapes, 27 of currants, 6 of gooseberries, 22 of blackberries, 3 of respberries, and one of quinces. Many of these he has had under test for a long time, and is thus in a position to give valuable information regarding the best varieties to plant in his section. Following is a list of the varieties he recommends of the various classes of fruits:

APPLES: Summer—Astrachan, Duchess. Fall—Ribston and Blenheim. Winter—Baldwin, Northern Spy, Greening and King.

PEARS: Wilder, Bartlett, Clapp's Favorite, Anjou, Clairgeau (dwarf), Kieffer, Winter Nelis, Easter Buerre.

EUROPEAN PLUMS: Bradshaw, Niagara, Quackenbos, Lombard, Imperial Gage, Reine Claude. JAPAN PLUMS—Willard, Abundance, Burbank, Satsuma and Wickson.

PEACHES: Champion, Crosby, Elberta, Early and Late Crawford, Smock and Tyhurst.

CHERRIES: Early Richmond, Montmo-

rency, English Morello, May Duke, and Windsor.

GRAPES: Worden, Concord, Delaware, Lindley, Niagara, Moore's Diamond.

CURRANTS: Red—Wilder, Cherry, Pomona, New Victoria, North Star. Black—Saunders, Naples, Collins' Prolific. White—White Grape and Imperial.

RASPBERRIES: Marlboro, Miller, Cuthbert, and Louden.

GOOSEBERRIES: Industry and Downing.

Fruit trees on the whole wintered fairly well in this section, and the crop last year was about up to the average. In Mr. Peart's apple orchard the crop of Ribston was exceptionally fine. His plum orchard has suffered severely with shot-hole fungus during the past two or three seasons, and most of the trees will not survive another year. The young experimental pear orchard set out six or seven years ago is coming nicely into bearing; a number of new varieties were fruiting last year for the first time. The black rot of the grape made its appearance in this section last year as well as in the Niagara district. The crop in Mr. Peart's vineyard was more or less severely injured.

THE LAKE HURON STATION.

An excellent general collection of fruits for experimental work has been started at this station by Mr. Sherrington, the experimenter. It is made up of 75 varieties of apples, 35 of pears, 45 of plums, 25 of cherries, 20 of raspberries, 15 of blackberries, 15 of currants, and 6 of gooseberries, and a half dozen or more of strawberries. So far Mr. Sherrington has been reporting principally on apples, plums and raspberries. At the time of my visit he was in the midst of his small fruit harvest. Currants and gooseberries were an excellent crop. The raspberries had suffered from the severity of the winter and also from the drought in that section last summer. Plums and cherries had suffered from winter killing more than any other fruits, and there was no crop in the trees left. Strange to say the Japan plums had, with few exceptions, proved more hardy than the European varieties. This has been clearly shown at a number of the other stations.

THE GEORGIAN BAY STATION.

Mr. John Mitchell, of Clarksburg, the experimenter at this station, has a good general collection of apples, pears, peaches, etc., but special attention has been given to plums, of which about 170 varieties have been under test. The trees here, as in most other sections of the province, had suffered more or less from winter killing, particularly in the old orchard where they were heavily loaded in 1903. The crop last year was comparatively light. A number of the Japan plums have, for several years, been fruiting heavily, and last winter they stood well while a number of the European varieties succumbed to the severity of the weather.

The following is a list of the European varieties which Mr. Mitchell recommends as having done the best with him: Washington, Imperial Gage, Bradshaw, Quackenbos, Archduke, Diamond, Monarch, Yellow Egg, Coe's Golden Drop, and Reine Claude.

The Japan plums he finds are not nearly so saleable as those of the European class just mentioned. The following he gives as the best of the Japan varieties: Red June, Burbank, and Satsuma. Mr. Mitchell has under test 10 varieties of peaches, all the trees of which bore heavily in 1903, but last winter gave them a severe test, and where the trees were not killed outright the fruit buds were destroyed.

(To be concluded in March issue.)

I am glad to find The Horticulturist so much improved. It is the best of its kind.—(A. J. Collins, Listowel, Ont.

The Canadian Horticulturist is a welcome visitor in our house.—(W. T. Patulla, Creemore, Ont.

WILL ENCOURAGE COOPERATIVE ASSOCIATIONS

P. W. HODGETTS, SECRETARY ONTARIO FRUIT GROWERS' ASSOCIATION.

AT a special meeting of the executive and the cooperative committee of the Ontario Fruit Growers' Association held in Toronto during January it was decided to assist the fruit growers of the province to form cooperative associations. With this object special assistance will be asked for from the Ontario Department of Agriculture.

Those present were Messrs. Alex. McNeill, Chief of the Fruit Division, Ottawa; the president of the Fruit Growers' Association, W. H. Bunting, of St. Catharines; A. E. Sherrington, of Walkerton; Elmer Lick, of Oshawa; Murray Pettit, of Winona; J. S. Scharf, of Woodstock; P. J. Carey, of Toronto; A. Gifford, of Meaford; P. W. Hodgetts, of Toronto, and Messrs. G. A. Putnam and H. B. Cowan, representing the Department of Agriculture. Last year, through the efforts of the association, a number of cooperative fruit growers' associations were formed which proved the salvation of the growers who joined them. In many places where buyers were offering 25 to 50 cents per barrel for apples on the trees, or not handling the fruit at all, members of these associations netted $1 or more per barrel for their XXX apples, and were able to dispose of all of their crops at good prices. The conditions in other places where the growers had to depend on the buyers were so bad the association has decided to encourage the formation of additional associations this year throughout western Ontario.

One of the most successful cooperators in Ontario, Mr. A. E. Sherrington, of Walkerton, told of the conditions in the western and southern parts of the province, and advised that a capable man be sent next spring into the best apple sections to thoroughly organize the growers. After a lengthy discussion it was decided to endeavor to organize a limited number of associations in sections where the growers have asked for help. The assistance of the Farmers' Institutes in this educational work was promised by the superintendent, and the campaign will be opened by a couple of meetings in Forest and Thedford, January 27 and 28. Other places will be visited, and it is hoped that before the fall of 1905 15 or 20 cooperative fruit packing associations will be in good running order.

GOVERNMENT HELP.

To further assist such associations, a resolution was unanimously adopted and forwarded to the Ontario Department of Agriculture asking that the Act for the incorporation of Cooperative Cold Storage Associations be extended for five years, and so amended that co-operative fruit growers' associations can be incorporated under the act with power to acquire by lease, purchase or otherwise cold storage plants, fruit cooling houses and central fruit packing houses. The Government was further asked to extend the grant of one-fifth of the initial cost of cold storage plants to apply also to fruit cooling houses and central packing houses. A recommendation was also forwarded to the Minister of Agriculture asking that a special appropriation be made this year to cover the cost of operating several power sprayers in different parts of the province, and to provide for instruction in the proper grading and packing of fruit.

Treatment For Aphis.—The black soap from France for treating aphis I applied to a row of cherry and plum trees with satisfactory results. The foliage on the treated trees retained a bright, glossy green, and the aphis was almost destroyed. I find strong tobacco water and soap a satisfactory treatment for aphis, and not injurious like kerosene emulsion.—(Harold Jones, Maitland, Ont.

A CANADIAN INSTITUTION TO BE PROUD OF

A GREAT change has taken place in Canada and all things Canadian during the past few years. From being content to watch the tremendous strides made by our neighbors to the south Canadians have awakened to the fact that they have a country and institutions of their own of which any nation might well be proud. It has been a surprise to many to find that in the Dominion there are industries and institutions that will hold their own with any in the world.

Canada's horticultural interests are greater than is commonly realized. The descriptions published in The Horticulturist last summer and fall of some of the Dominion's leading nurseries were a revelation to many fruit and flower growers. Another horticultural institution of which Canadians may well feel proud is the Steele, Briggs Seed Co., whose head office is located in Toronto, but which has branches in all parts of the world. Some conception of the wide scope of the business conducted by this firm may be gained by a glance at the list of countries from which it secures its seeds.

Most of the seeds are grown under contract. Peas and beans are principally grown in Canada, carrots in France, parsnips in California, onions in California and Connecticut, and cauliflower in Denmark. Flower seeds come principally from Germany and bulbs from Holland.

"Our idea," said Mr. A. W. Annandale, the manager of the retail department, greenhouses and trial grounds, to an editorial representative of The Horticulturist who visited the company's establishment during January, "in having our seeds and bulbs grown under contract in distant countries is to ensure our being able to obtain plenty of seed and bulbs a high percentage of which will germinate. Take, for instance, onion seed, a great deal of which we obtain from California. While we can obtain this seed in Canada when the season is favorable there are many years when we are unable to secure it. Some years we

A Horticultural Institution With Branches All Over the World

The second largest seed firm in the continent is that of the Steele Briggs Seed Co., of Toronto, a description of which appears in this issue. (From a photograph taken specially for The Canadian Horticulturist.

may be able to get seed, but only a small portion of it will germinate. The season in Canada is too short to enable the seed to mature properly every season.

"Were we to rely for our supply on the Canadian crop there would be many years when we would not have any seed for our customers. In California conditions are different. The season there is long and dry, and a good crop of seed is secured practically every year. California is better in this respect than Connecticut, where some of our seed comes from, as the atmosphere in Connecticut is often so moist, on account of the nearness of the ocean, that difficulty is experienced in obtaining good seed."

"Is there not," was asked, "a danger that seed secured under such different climatic conditions will not be suitable for the purpose of Canadian growers?"

"We guard against that," Mr. Annandale replied, "by carefully testing the seed before we offer it for sale. For this purpose we have established trial grounds, comprising about seven acres, in the eastern part of the city. Samples of the seed received from the different countries are taken and sown under conditions approaching as near as possible those under which the seed is finally to be sown. Where the seed is to be sown in the open we sow it in the open on our trial grounds. If the seed of bulbs are of some delicate plant or vegetable we first plant them in the greenhouses, which we have had erected specially for that purpose, and later transplant the plants to the open. This work has grown so rapidly we have had to add one greenhouse after another until now the greenhouses cover about an acre of ground. A careful record is kept of the percentage of seed from each lot which germinates. If the percentage is low we do not sell that seed."

"How," was asked, "do you manage to make your arrangements with the growers in so many different countries, and how do you make certain that they are giving proper attention to the work?"

"We have found it necessary," replied Mr. Annandale, "to send representatives to these different sections and countries, who arrange with the growers at first hand. Some of the growers in Canada and the United States are visited two and three times a year. Our business in flower seeds and bulbs is not large enough to warrant us in sending a representative to such places as Bermuda and Japan so often. These points are not visited more than once in three years."

"What guarantee have you," was next asked, "that the growers will send you good seed?" "If," replied Mr. Annandale, "we find, after testing the seed on our trial grounds, that certain growers are not sending us seed of high quality we immediately warn them, and if necessary break off our contracts with them. Some of the growers with whom we deal have been sending us seed for years and we have found them so reliable we hardly deem it necessary to even test their seed. The rule for good seed is that 85 per cent. should germinate, though in some cases, such as sweet corn, up to 100 per cent. will grow, while in some other seeds 85 is a high percentage.

"Some seeds," continued Mr. Annandale, "are very costly. A consignment of cauliflower recently received is worth $28 per pound, and a calceolaria, not a new variety, costs $40 per ounce. Some varieties are sold by the thousand seeds and are so fine that we have considerable difficulty handling them as they have to be counted under the magnifying glass."

THE BUSINESS DEPARTMENT.

The representative of The Horticulturist was much interested in certain features of the business that were pointed out to him by Mr. Annandale in connection with a visit to the wholesale premises on Front street, Toronto. Although the start of the Steele, Briggs Seed Co., 32 years ago, was a hum-

ble one, like those of the nurseries that have been described in The Horticulturist, the business has grown to such an extent that everything has to be done on a large scale. In addition to the wholesale department, and the greenhouses and trial grounds already described, it has been found necessary to establish a retail store on King street, as well as branches in Hamilton and Winnipeg. Some conception of the volume of business transacted may be gained from the fact that over 100,000 catalogues,

Lilies Growing in Bermuda

A view of one of the fields of lilies as grown in Bermuda under contract for the Steele Briggs Seed Co., of Toronto, is here shown. In Bermuda lilies are grown to perfection.

printed in English and French, are distributed every year, describing the seeds, small fruits, fertilizers, garden tools, etc., that the firm deals in.

SEED MUST BE CLEAN.

A most interesting piece of apparatus at the wholesale warehouse is one used for cleaning the seed. This is accomplished by a sort of fanning machine. "We have to exercise great care," said Mr. Annandale, "to see that the seed we send out is free from all impurities. The germinating seed is the heaviest, and when we turn the blowing machine on the seed the lighter impurities are forced out.

"As most of the seeds sold through our retail branches, and the firms with whom we do business, is put up in small packages many hundreds of thousands of these paper packages are required. On this account we have found it necessary to instal machinery for the special purpose of making these bags. One machine will make 35,000 in a day. These bags are printed on ordinary printing presses on the premises and then filled and sealed by another machine at the rate of 28,000 per day. The cardboard cartons containing larger seeds, such as sugar corn, peas, beans, turnips, mangolds, etc., are filled by a machine similar to that used for tea packages.

"As the greater part of our business is done on a commission basis, assortments of our seed neatly arranged in cases for display are sent out early in the year to merchants all over Canada, and after the season is over the cases, with any unsold seeds, are returned. A staff of carpenters is employed in repairing seed cabinets and boxes which come back in a damaged condition."

"The great bulk of your seed must be sold in Canada," said the representative of The Horticulturist. "Yes," replied Mr. Annandale, "outside the older portions of Canada we find that Manitoba and the Northwest, including the Yukon, furnish a field for almost unlimited expansion. Of the colonial markets Australia is the best we have."

In the wholesale department Mr. E. F. Crossland is manager. The other leading officers of the company, besides Mr. Annandale, are Mr. R. C. Steele, president; Mr. S. E. Briggs, vice-president, and Mr. W. D. Steele,

Although the representative of The Horticulturist found a great deal to interest him in what he saw he was informed by Mr. Annandale that a visitor to the company's trial grounds and green houses is most enjoyable from July till the end of September, when there is a profusion of bloom. With such institutions as these Canadians may well look forward hopefully to the future of the horticultural interests of the Dominion.

FRUIT GROWING IN BRITISH COLUMBIA

FRUIT growers in British Columbia had a successful season last year and are looking forward hopefully to the future. This was shown at the annual convention of the Fruit Growers' Association held at Duncans, B. C., January 5.

In his annual address the president, Mr. J. C. Metcalfe, of Port Hammond, B. C., reported that schedule prices had been obtained and well maintained throughout the season. There was a marked general improvement, not so much in areas planted, quantities and qualities of fruit grown, as in the mechanical part, viz., packing and grading, qualities of packages used, and the cultural methods employed in orchard work. The fruit growers, he considered, should congratulate themselves on the prices obtained, as compared with either eastern Canadian or United States growers.

There has been a disposition on the part of British Columbia growers in the past to cut prices as the season advances. With this in view, the association in the early part of the last year attempted to secure the cooperation of fruit growers, and thus far has been quite successful. In no case has a member of any of the local unions quoted below the schedule of prices agreed on and sent out to dealers in British Columbia, Manitoba and the Northwest Territories.

President Metcalfe strongly urged growers to cooperate more, not only that lower rates may be secured from the railroads, but that fruit may be marketed in better condition and to better advantage.

THE SECRETARY'S REPORT.

Much interesting information was contained in the report of the secretary, Mr. W. J. Brandrith, of Ladner, B. C., which was, in part, as follows:

Fruit growing in British Columbia is not a "get rich quick" proposition, but those who have paid attention to their business, neglecting no detail, however trivial, have had the pleasure of handling more money for their fruit during the past season than for several years. Although the plantings have been large the acreage of fruit bearing orchard is still insufficient to supply the rapidly increasing demand for No. 1 fruit. The large increase in the population of our cities and the immense immigration into the northwest and Manitoba assures us of a profitable market, to say nothing of the trade that might be developed with the far east. The opening of the Panama Canal will give us a chance in the markets of Great Britain and Ireland. With such an outlook for profitable markets we should use every endeavor to produce strictly No. 1 fruit and advertise it in every way. The people of the northwest are as anxious to get our fruit as we are to get their flour.

I think I may justly compliment the association on the success of the display of British Columbia fruit at the Dominion Exhibition in Winnipeg last summer, under the auspices of the Provincial Government, and also on the splendid achievement of British Columbia fruit at the Royal Horticultural Society's show in London, Eng., during October, at which the province received the first prize.

The success achieved in this competition in London should stimulate those who have the direction and supervision of the British Columbia fruit industry to still greater efforts to maintain and improve the quality of the fruit raised and to protect the crops from the inroad of insects and other pests. It is a matter of common knowledge how the orchards of Ontario and some of the Pacific Coast states have been ravaged and almost made valueless by the lack of precautions and the absence of a system of rigid inspection and supervision.

Considerable as the growth of the industry has been it is but in its infancy. Some of the districts on the island and coast section of the mainland will be put largely under fruit, while the Okanagan and some

other districts of the interior are destined to become famous throughout Canada for their fruit products. Difficulties incidental to the settlement of a new country are being gradually overcome, and experience is being accumulated from day to day as to the best methods of cultivation. We venture to prophesy that it will not be many years before an annual provincial exhibition of fruit will be one of the leading and regular incidents in the history of British Columbia.

FRUIT MARKS ACT ENDORSED.

The good effects of the continued enforcement of the Dominion Fruit Marks Act are very noticeable. Still large quantities of inferior fruit are put on the market, and being marked No. 3 escape the penalties which they justly deserve. I would suggest that the association ask the department to specify what constitutes No. 2 and No. 3 apples. My own opinion is that No. 3 apples should never leave the farm.

THE MANURING OF FRUIT TREES

PROF. A. WAGNER.

THE notion is still very prevalent amongst agriculturists that it is unnecessary to manure fruit trees. This idea is principally due to the fact that many fruit trees, even without any special manuring, occasionally give good yields. Further, an impression has gained ground that a fruit tree which has borne well one year cannot give any yield the next or even the following year, because it needs rest.

Neither of these opinions is correct. The fruit tree is subject to the same natural laws, as regards nourishment, as any other plant. When the nutriments which are present to a limited extent in the soil have been used they must be restored, or in other words the soil must be manured. The reason a tree which has yielded well one year generally bears little or not at all the next year, is capable of a simple explanation; the necessary assimilated plant food is no longer available in the soil and the tree cannot again form fruit until the soil is rendered able to supply this food.

If a tree which has yielded well is correctly manured at the right time there is no reason why it should not bear fruit year by year. Plenty of examples can be given where trees thus manured have given good crops for many years in succession, any failure being attributable to some other cause, such as unfavorable weather at the time of blossoming, birds, insects, fungi, etc. There has been an improvement of late years, and there are already farmers and fruit growers who, when manuring, do not forget the fruit orchard, but there is still a great deal wanting in this respect.

In order to grow and thrive, the fruit tree requires, like every other plant, warmth, sunlight, and moisture, as well as a number of other substances, which are taken partly from the air through the medium of the leaves, and partly from the soil by means of the roots. The latter substances are called nutrients, and include carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, potash, lime, magnesia and iron. All these substances are indispensable to the prosperity of the fruit crop, as if any one of them is wanting the tree cannot develop. If one or several of these substances are present to only a limited extent the tree cannot take up the remaining nutrients—even if these are present in excess—in quantities sufficient for its complete development. The yielding capabilities of a tree are therefore regulated by that nutrient which is least available in the soil.

SHOULD SUPPLY FOUR SUBSTANCES.

Fortunately, most of the substances named are so largely present in the soil or

in the air that the grower has not to trouble himself about supplying them by means of manuring; in fact, only the following four substances need come into question: nitrogen, potash, phosphoric acid, and lime. These substances cannot be supplied to and taken up by the plants in their elementary forms, but have to be applied in combination with other substances.

Nitrate of soda, containing 15 to 16 per cent. of easily soluble and available nitrogen in the form of nitric acid, is very suitable for the manuring of fruit trees. It is more completely used up when applied to fruit trees than when used for ordinary crops, as that part of the roots of fruit trees which go deeper into the soil are able to take up any part of the nitrate of soda which the rain may wash deep into the soil, and which, in the case of ordinary crops, would be wasted, having gone beyond reach of the roots.

Superphosphate contains 12 to 20 per cent. of wated-soluble phosphoric acid. The phosphoric acid in this manure is soluble in water, its action therefore rapid; but on the other hand there is little or no subsequent benefit. On soils deficient in lime the full effect cannot be obtained from the use of superphosphate, as on these soils the soluble phosphoric acid is converted into the insoluble phosphates of iron and alumina, the phosphoric acid of which cannot be made use of by the plants, but superphosphate can be employed in cases where the phosphoric acid is required to act quickly, and where no prolonged action is expected.

Kainit, containing 12 per cent. potash, is not to be recommended for the manuring of fruit trees on ordinary and heavier soils; it should only be used on light, dry, sandy soils, and must then be applied in the autumn. Muriate of potash and sulphate of potash both contain about 50 per cent. of potash. Muriate of potash can be specially recommended for supplying the potash requirements of fruit trees on soils fairly rich in lime, whereas sulphate of potash is to be preferred for soils where the lime is present in small quantities only.

The Time to Apply the Wash

PROF W. LOCHHEAD, O. A. C., GUELPH.

Would you kindly let me know what time of the year has been shown to be the most satisfactory for the application of the lime-sulphur caustic wash. I understand, of course, that its primary purpose is to clean the bark, but is it also good as a fungicide ?—(J. Robertson, Chateauguay Basin, Que.

As the result of experiments carried on for the past two years, when applications were made at different periods during the dormant season, it was pretty well proven that it is not safe to apply the lime-sulphur mixture any time before the middle of January. Trees treated in December last year were badly hurt by the application, while trees in the same row and same block treated in late winter suffered not at all. It is pretty well conceded that the best time to apply the lime-sulphur caustic mixture is in the spring while the limbs are still dormant, just before the buds unfold.

There seems to be no doubt that this mixture is also an excellent fungicide. It appears to kill many of the winter spores which would otherwise mature and spread the disease. Regarding its value as a check to the "spot" on the Fameuse, I am of the opinion that an application of this mixture will very materially check the disease. It is likely true that two or three additional sprayings with Bordeaux will be necessary to check the spot completely. A spraying given in early spring, while the trees are still dormant, will have no effect in protecting the leaves of the trees later on in the summer from infection by spores which are blown to those leaves. Subsequent sprayings with Bordeaux are, therefore, necessary.

PEDIGREED STRAWBERRY PLANTS

A GREAT deal of discussion has been taking place among strawberry growers, both in the United States and Canada, in regard to the claims of excellence that have been made by growers of pedigreed strawberry plants. The result of enquiries made by The Canadian Horticulturist indicates that Canadian growers do not believe that so-called pedigreed plants are any better than ordinary stock that has been given good treatment.

"The thoroughbred plant people have been doing an injury to honest nurserymen by their false statements," writes Mr. R. H. McDowell, of Tillsonburg. "The experiment stations should have exposed their fraud long before this. There may be something in the pedigree theory if properly worked out, but I have proved to my own satisfaction that the plants sent out as thoroughbred pedigree plants are in no way superior to the average scrub stock.

"In order to test the matter I selected the Michel's Early, as some plants of that variety will stool out and send up a number of fruit stalks, while other plants apparently strong and well matured will fail to put on any fruit. It looked quite reasonable to me that if they were propagated year after year from the productive plants a more productive strain would result. I had taken no pains to select the productive plants in my patch, and had been growing them in that manner nearly ever since their introduction. I sent for some pedigree plants of the above variety. They came promptly. I threw out a number of poor, little, sickly, immature ones that I did not consider worth planting and planted the rest beside a row containing an equal number of plants of my own scrub stock. I gave them the same care as my own stock. They made a fairly good row. Mine made too many plants as I did not thin them. The fruit on the thoroughbreds was no larger or better in quality than that which grew on my scrubs, and while I did not keep account of the exact number of baskets picked from each I should judge we picked nearly double the amount of berrise off mine that we did from the others.

"I dug plants off the above rows and set out a patch next spring. Both made a good row, but I could see no difference in them. They had become acclimated and accustomed to my mode of treatment. If there was any difference in fruiting qualities it was in favor of my scrubs. I found as many barren plants among the thoroughbred plants as among my own, and came to the conclusion that pedigree plants are a fraud."

SHOULD HAVE THE PLANTS TESTED.

"Breeders who profess to know all about good strawberry plants," suggests Mr. Charles H. Snow, of Cummings Bridge, Ont., "should send their plants to the experiment stations to have them tested beside those of well known plant growers. Improvement of plants by selection of the parentage stock is, in my opinion, correct, but the life of a plant, especially a strawberry, is too short to attach a pedigree to it."

Considerable attention has been given to this subject by Mr. M. Crawford, of Cuyahoga Falls, Ohio, who has come to the conclusion that the characteristics of a variety of the strawberry or any of our fruit bearing plants cannot be changed, increased or diminished by any system of selection, cultivation, pruning or fertilizing.

EXTRAVAGANT CLAIMS HAVE BEEN MADE.

"Some extravagant claims have been made by one or two United States strawberry growers for their so-called thoroughbred or pedigree plants," writes Prof. H. L. Hutt, of the Agricultural College, Guelph.

"These men know nothing about what pedigree means. There are men, such as Burbank, of California, and our own Mr. Groff, of Simcoe, who have bred plants through generation after generation until they have what might well be called highly bred or

pedigreed plants. But such plant breeders are few."

"There are many of our Canadian strawberry growers who are growing their plants on good soil, under good cultivation, and who are careful to select healthy, vigorous plants from new plantations, who can furnish just as good plants as any of the advertisers who make such extravagant claims for their plants grown in no better way. I am glad that you are taking this matter up in The Horticulturist. I have heard of Canadian growers who have been disappointed in these so-called pedigree plants obtained from the States, when they might have got as good, if not better plants from some near-by grower or neighbor. It is well that our fruit growers are anxious to get the best that can be obtained, yet they must remember that varieties are developed or bred up by the few who can give the attention to crossing and breeding of plants, while the general grower is concerned more about the selection and growing of thrifty, vigorous plants of the varieties so established."

BLACK ROT OF GRAPES *

PROF. W. LOCHHEAD, O. A. C., GUELPH, ONT.

PERHAPS some of our Ontario grape growers are wondering if the methods which are so effective in Ohio in controlling the grape rot can be relied on in Ontario. We are not able to answer this question definitely on account of the newness of the situation and the absence of experimental work for a longer period than one season, but on account of the similarity of situation of the two grape belts, both as to soil and climate, we would be justified in answering in the affirmative. Both regions are grape regions on account of their peculiar position to one of the great lakes, both being strongly influenced by the presence of a large body of water to the north. Moreover, the experience of Mr. W. H. Bunting this past season in controlling a bad attack of black rot in his large vineyards near St. Catharines would lead us to believe that the disease could be controlled even more effectively the coming season. Mr. Bunting sprayed persistently and carefully from early spring to the middle of August and was rewarded with a good marketable crop. Like myself he believed thoroughly in early spraying, even while the vines are yet dormant, for the reason that the early spores are prevented from effecting an entrance into the tissues. In the great majority of cases this reasoning stands true, but apparently it is not true with the black rot, for the Ohio experiments carried on for three years in succession showed conclusively that the fungus can be kept out entirely and absolutely even when the first spraying is delayed until the last week in May or the first week in June and when the young shoots are nearly eighteen inches long.

It may be that the winter spores are not set free from their cases until the shoots are of considerable length and after the shoots have come out of their dormant condition.

It is very evident that besides persistent and careful spraying clean culture is a very essential factor in the control of black rot.

A study of the reproduction of the fungus shows the presence of spores which winter over in the dead leaves, diseased shoots, and mummy fruit. It is important, therefore, that as many of the diseased leaves, shoots and grapes as possible be collected and burned, or buried deep by the plow so that there is no likelihood of the spores reaching the surface to be scattered by the wind. The most fruitful source of infection is the

* Extract from an address delivered at the annual convention of the Ontario Fruit Growers' Association.

mummy grape, which is too frequently allowed to remain on the vines as long as it wishes.

OTHER DISEASES OF THE GRAPE.

A few words regarding other diseases of the grape. First, and next in importance to the black rot, is the brown rot or downy mildew. This and the powdery mildew were quite prevalent in the Winona-Grimsby district. The downy mildew is characterized by the presence of pale spots becoming brown on the upper side of the leaves and corresponding whitish downy patches on the lower surface. The downy patches consist of microscopic branching stalks, bearing spores capable of infecting new vines. The fruit when attacked shows brown spots which rapidly enlarge. Soon the whole fruit becomes rotten.

The powdery mildew, unlike the downy mildew which feeds within the tissues of the leaves, shoots and fruit, is a surface feeder, and is first noticed on the upper surface of the leaves as a white mouldy growth. Two kinds of spores are produced, the summer spore in immense numbers, and the winter spore, borne in brown or black bodies, which are readily seen in late summer with a glass, immersed in the white growth.

The bird's eye rot is not a serious disease, but it is sometimes met with. The diseased spots are at first brown, and with a distinct margin. Later the center is whitish, and the margin is purple with a reddish inner circle.

Bordeaux mixture applied three or four times at right periods during the summer will control any of these minor diseases.

GRAPE FERTILIZERS

A. W. PEART, BURLINGTON, ONT.

IN order to fertilize grapes economically and effectively due consideration should be given to their special needs and the sort of soil where they are grown. In a general way grapes, as well as pears, consume a large quantity of potash. Clearly then potash must be either in the soil or supplied to it.

It appears to be well understood that a clay soil, or better still, a clay loam, is the natural home of the grape. Vineyards are often planted on sandy or gravelly loams with excellent results. They, however, require different methods of handling.

There are two plantations here, one on a clay, the other on a gravel loam. The former grows only a light to moderate amount of wood, with highly flavored fruit. I do not use potash of any kind in this vineyard, but every other year plow under a liberal application of stable manure. This supplies humus and promotes wood growth as well as size in the fruit. The other plantation does not require much wood stimulus, perhaps stable manure once in five years, but on account of the relative absence of potash in gravelly soils, muriate or sulphate of potash or wood ashes are used, preferably the latter. Unleached hardwood ashes I consider the best, scattered broadcast over the soil after plowing in the spring, at the rate of about 40 bushels per acre each season.

In the absence of enough ashes I use one of the other potash combinations, giving the preference to sulphate, sowing it evenly by hand like grain, after plowing, then harrowing it in. I think that the sulphate form may act as a check on mildew as well as a fertilizer. Either sort is used at the rate of 200 pounds per acre, each year. The above applies to bearing vines. When young I push them by careful cultivation and stable manure when necessary.

Pruning Currant Bushes

LINUS WOOLVERTON, GRIMSBY, ONT.

THE pruning of the currant is most important, because the young wood is the most fruitful, and if the growth is well cut back an abundance of fruit buds will, of course, result. The natural tendency of the growth of a young currant plant is shown by the illustration. If in the winter pruning these are cut back to two buds each

Natural Growth of Currant Bush.

Fruit Spurs on Currant Bush.

fruit spurs will form along the whole length of the main stock, as illustrated.

This treatment applies to the white and red currant, on which the fruit is borne on wood of the same season's growth, but not to the black. The fruit of the black currant is produced on one year old wood, and consequently it will not do to give it spur pruning. This work should, of course, be done in the winter season. Proper attention to this work is very important.

VARIETIES OF STRAWBERRIES

STRAWBERRY growers who have not done so, will soon have to make a selection of the varieties which they will grow in 1905. Some interesting information respecting varieties tested in 1904 is contained in Bulletin 154 of the Ohio Agricultural Experiment Station, a copy of which has just reached The Horticulturist. One hundred and fifty varieties were tried with varying results. Undoubtedly there are many, even among those which failed to give satisfactory results, that upon other soils or under different conditions would prove valuable.

UNSATISFACTORY VARIETIES.

Varieties which did not produce satisfactorily were : Arizona, Arnot, Auto, Bush Cluster, Bryan, Beder Wood, Cameron, Clyde, Corsican, Darling, Double Cropper, Emperor, Empress, Early Giant, G. X. M. Nos. 1, 2 and 3, G. X. E. Nos. 3 and 4, Hunn, Lady Jane, Livingstone, Mammoth, Margaret, Marshall, Martin No. 1, Mayflower, McKinley, Michel, Monitor, Nina, Palmer's Very Early, Parker Earle, Patrick, Rapp, W., Riehl No. 3, Rough Rider, Success, Sunrise, Young's Early Sunrise, Thompson's Nos. 102, 201, 203, 500, 502, Thompson's Earliest, Twilight, Victor, Yant.

SATISFACTORY VARIETIES.

The most satisfactory early varieties were Excelsior, Fairfield, Gill and Mayflower. The latter ran very small after the first two pickings. The more prominent early varieties were Haverland, Louis Hubach, Lyon, Manokin, Senator Dunlap, Texas and Warfield.

The best mid-season varieties included Bubach, Gibson, Lloyd, Marie, Parson's Beauty, Pocomoke, Sample, Shenandoah, Sutherland and Uncle Jim.

LATE VARIETIES.

The most satisfactory late varieties were Cardinal, Commonwealth, Latest. Nettie and Robbie. Those varieties noted for their unusually good quality were Carlisle Seedling, Chellie, E. H. Ekey, Kittie Rice, Luxury, Nick Ohmer, Pennell, Senator Dunlap and Wm. Belt. The most prolific varieties were Bubach, Bismarck, Fairfield, Fisher (Prof.), Fisher (Mrs. Prof.), Gill, Glen Mary, Haverland, Highland Seedling, Howard, Kansas, Louis Hubach, Lucas, Lyon, Marie, Minute Man, New Globe, Parson's Beauty, Pocomoke, Rochester Seedling, Sample, Senator Dunlap, Shenandoah, Shepard, Sunshine, Sutherland, Thompson's No. 124, Uncle Jim and Warfield.

OTHER GOOD VARIETIES.

Varieties remarkable for large size and unusual beauty included Chellie, E. H. Ekey, Latest, Nettie, Sample and Springdale Beauty. (The latter failed to hold up in size, however.) Varieties standing prominently as leaders for market were Bubach, Cardinal, Fairfield, Gill, Haverland, Highland Seedling, Lyon, Parson's Beauty, Pocomoke, Sample, Senator Dunlap, Latest, Nettie, Robbie and Uncle Jim. A quartette of varieties excellent for home use : Carlisle Seedling, Kittie Rice, Pennell and Senator Dunlap.

I have tested a great many varieties of strawberries and my main crop consists of Crescent and Williams. The Crescent is the most profitable strawberry among upwards of 100 varieties tested. It will pay better at five or six cents a box than many of the others would do at 25 cents.—(G. C. Caston, Craighurst, Ont.

"I seldom thin my pears, or fruit of any kind, as labor is too expensive. I tried it once with some of my Bartletts and found it paid, as the fruit was larger and there was no loss through the branches breaking down from over bearing. Sometimes my branches break in this way, but not often." —(E. C. Beman, Newcastle, Ont.

Disease Among the Lilies

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

For the past two or three years a blight seems to have destroyed the leaves of my lilium candidum, and the flowers have followed suit so that scarcely a head or truss opened entirely, and some of them were completely blighted. Each bud would turn brown and then a darker color in spots, open unevenly or not at all. When the foliage remained decently green the flowers opened fairly. Would Bordeaux mixture or anything similar be beneficial, and if so when should it be applied.—(J. C. Morgan, Barrie, Ont.

The disease is a very difficult one to treat, and one for which there is not any satisfactory remedy. Spraying with Bordeaux mixture in spring before there is any sign of the disease, and keeping the foliage and buds covered with it until the blossoming time, is a partial preventive, and if this is continued for several seasons the disease may be eventually eradicated. If the plants are sprayed after the disease is noticed it is too late.

Putting the bulbs in new soil is recommended, but this is not perfectly satisfactory. If the bulbs are removed it is wise to dip them in Bordeaux mixture before replanting. Success has been reported by taking up the bulbs shortly after flowering and after they have been dried off, putting them in a bag with flowers of sulphur and shaking them well so that the sulphur will get well between the scales, then plant in new soil with the sulphur still on them. The surest way of getting rid of the disease is by destroying the bulbs and obtaining new ones known to be free of the disease and then to plant them in new soil.

Big Strawberries.—Great Crops of Strawberries and How to Grow Them, is the title of a book written by the R. M. Kellogg Co., of Three Rivers. Mich. It is conceded to be one of the best books ever written on growing fancy strawberries. Every detail of strawberry growing is dealt with, and those who read it will find much valuable information. It contains nothing but common sense and the results of actual experience in berry growing, and will be sent free to all of our readers who will send their address to the publishers. An offer made by the firm will be found in our advertising columns.

I find the Early Richmond, Montmorency and Fay cherries are superior to any others I have ever grown for profit.—(John D. Wigle, Kingston, Ont.

Greenhouses and Trial Grounds of the Steele Briggs Seed Co.

This illustration shows the greenhouses and trial seed grounds, at Toronto of the Steele Briggs Seed Co., whose immense establishment is described elsewhere in this issue.

FERTILIZERS IN THE GREENHOUSE

"THE only fertilizers I use in my greenhouses," said Mr. J. H. Dunlop, the well known rose grower of Toronto, to a representative of The Horticulturist, who visited his greenhouses during January, "is the best cow manure, and ground bone, with occasionally a little soot to develop the color. I have tried a great many fertilizers and find nothing to equal these.

"When I replant the roses I use fresh soil, and when it becomes exhausted I begin to use the cow liquid, applying it once a week. About the middle of February I mulch with cow manure. This is done once or twice. Good clover sod from old pasture, with an admixture of bone dust, makes an ideal soil. The bone dust must be ground fine. I have had to discontinue the use of Canadian bone dust because I cannot get the manufacturers to grind it fine enough, and all I use is imported from Chicago. If permanent beds were used a coarser bone would answer, as it would gradually be absorbed, but for soil which is frequently renewed coarse bone means waste.

"I have used a fertilizer made from carcases of animals, which contains a good deal of fatty matter. It is too strong, as it causes the leaves to fall off, and it parts with its ammonia too freely. Three days or so after being applied the ammonia begins to pass off, and for six or eight days continues to do so, hurting the foliage. In the spring, when the greenhouses are more fully ventilated, this objection would not be so great. The escape of ammonia can be checked to some extent by a covering of soil. The H brand when used should be applied light and often. A 200 pound bag will cover about 3,500 square feet. I have also tried a fertilizer made in Peterboro, but cannot see any results.

Soot is applied in liquid form. The soot is put in a coarse bag and placed in water in a barrel or other receptacle. Lime, air slacked and sprinkled on the soil or used in the form of lime water is helpful. It tends to sweeten the soil.

"I may have to resort to the use of artificial fertilizers more and more in the future, as it is becoming increasingly difficult to procure cow manure. A Toronto city by-law compels the removal of cow byres beyond the city limits, and I cannot procure it from the country, as it pays the farmer better to use it on his own land. I have to pay double the price for it I had to two years ago.

"Great care and caution must be exercised in the use of fertilizers in the greenhouse. Each grower must experiment with his own soil and study results. Tests should be made on a small scale so that in case of failure the loss would be small. The aim in rose culture should be strong growth, stiff stem, deep green foliage and large and well colored flowers."

Roses and carnations are Mr. Dunlop's specialties. He also grows a good many violets and some asparagus plumosus, smilax, chrysanthemums, lilies, lilacs, azaleas, rhododendrons, mignonette, etc. He has about three and a half acres under glass, half of which is devoted to roses, one-sixth to carnations, one-sixth to violets, and the remainder to sundries and to propagating houses. A visit to his greenhouses is a most interesting experience.

I notice that a row of apple trees planted in my orchard next to a row of walnut trees have not grown so well as the others, and some of them have died. It seems to me it does not do to plant apple trees too near walnut trees.—(A. Shaw, Walkerton, Ont.

Until my cherry trees are three years old I cut back all vigorous center growth. This extends the trees outward rather than upward. I give them as much of an umbrella shape as possible.—(John D. Wigle, Kingston, Ont.

THE RED OAK AS A SHADE TREE

W. T. MACOUN, WITH ILLUSTRATION BY FRANK T. SHUTT.

IN the United States the oak is growing in popularity as a shade tree for street planting, and more trees are being planted every year. The popular species is the Pin Oak (Quercus palustris), which is of good form, and has attractive foliage which colors highly in the autumn.

This species is a native of the province of Ontario, but only grows in the natural condition in the southwestern peninsula. At Ottawa it has not proven satisfactory, as it is not very hardy and is a slow grower. There is a native species, however, which is doing remarkably well at Ottawa, namely, the Red Oak (Quercus rubra). This is a very hardy oak with a wide range in Canada, as it is found growing wild from the Maritime provinces to the height of land west of Lake Superior. It is a rapid grower compared with other oaks and compares very favorably in rate of growth with the hard maple.

The tree, though not particularly graceful, is of good form and has a particularly clean look about it. The leaves are large and prominently dentated, of a deep green and quite glossy. In the autumn they usually assume the rich tints for which the oaks are noted, and will remain on the trees until near winter and long after the leaves from other trees have fallen. The Red Oak is rarely, if ever, affected by insects or disease at Ottawa, and the absence of these, together with the other good points already mentioned, makes this tree particularly desirable for street planting, but, as it becomes very wide spreading with age, if planted for this purpose it should only be used on wide streets and avenues.

It has never, to my knowledge, been used for street planting to any extent either in Canada or the United States, but why it should not be is what we have yet to learn. The tree in the photo, which was taken at the Central Experimental Farm, was planted in its present position nine years ago when it was about ten years old and about the size required for street planting. It is now 20 feet 8 inches in height, with a spread of

A 10 Year Old Red Oak Tree

14 feet. Another tree of the same age, growing in almost pure sand, which was transplanted when it was two years old, and has been in the same place since, at 19 years of age is 30 feet 6 inches in height with a spread of 24 feet.

No man with a spark of manhood in his composition cares to see his neighbor's home surroundings more tidy and beautiful than his own, nor to admit to the public that he is lacking in those evidences of culture and refinement of which these things are the outward expression.—(P. G. Keyes, Ottawa, Ont.

This is the fourth year I have advertised in The Canadian Horticulturist, my advertisement occupying a half column in each issue. I find it a paying investment and consider it one of the best means I have of making sales.—(William Fleming, Nurseryman and Florist, Owen Sound, Ont.

HOUSE PLANTS IN THE WINTER *

MISS PEEL AND MISS M'KEE, FORDWICH, ONT.

WE must first have a love for flowers if we are to be successful in their cultivation. A plant should not be watered every day whether it needs it or not. More plants probably die from over-watering than from any other cause. Stir the soil with your finger, and if it is dark colored and adheres to your finger the plant does not need water, but if it is dusty and light colored it needs watering. If the soil around a good, vigorous plant, growing in a warm room, shows signs of dryness it should be saturated to the bottom when it is watered. A poor plant with little foliage should not be watered often. It is better to wait until it is quite dry.

Plants breathe through their leaves and consequently require fresh air every day. If the leaves of the plant get covered with dust its breathing pores are stopped and the plant cannot live long. They should, therefore, be frequently sprinkled, or the large leaves wiped off with a wet sponge. This should be done every week at least. It will also prevent the eggs of insects, which may be on the plants, from hatching.

FROZEN PLANTS.

It sometimes happens that through some mischance the plants in the windows become frozen. In such a case the best thing to do is to remove the plants, as soon as possible, into a cool, dark room, a little above the freezing point, and sprinkle them with water, then bring them gradually to the heat. Sudden heat will completely destroy the plants. Plants that have been frozen can often be saved in this manner. A good plan to guard against frost is to cover the plants at night with newspapers.

STUDY YOUR PLANTS.

Amateur florists should study the habits of the plants in their collections in order to give the special care needed by each variety. Not only does this apply pertinently to watering but to the position in the window. If you have a southern window for plants this will suit geraniums, heliotropes, roses and plants of that class, but begonias, primroses and many other plants adapted to house culture are not particularly fond of strong sunshine, in fact are often injured by full exposure to it. Find out what plants like partial shade and give them positions in the rear of the sun-loving plants. In this way the plants that require sunshine will not be robbed of it, and those which do not require sunshine will not be harmed by having an excess.

When arranging plants in the window garden aim always to have the view from the room pleasing. They are for home adornment and they should be most attractive from the home standpoint. A good general rule to follow for effectiveness in arrangement is to have the taller ones at the sides. This frames in the window and allows the sun to get at the centre of the group. If all the plants are sun-loving ones place the low growing ones next the glass with the taller ones behind. Do not crowd any of them.

The use of swinging iron brackets at each side of the window is highly advisable from the standpoint of utility as well as looks. Those holding three pots enable one to arrange small plants of a drooping nature, so that the effect is very fine. These brackets can be swung to or from the glass and are in every way preferable to shelves.

There is really no time nor occasion when flowers are out of place. In the home they serve a two-fold purpose, beautifying by their presence, and refining by their quiet influence.—(A. R. Goodman, Cayuga, Ont.

* A paper read at a Woman's Institute meeting.

FLOWER AND PLANT LORE

EDWARD TYRRELL, TORONTO, ONT.

I WILL leave my history and lore of flowers and plants for a while, as our garden beauties are taking their rest, and write some of my gleanings about trees. The early Christian teachers of European nations taught that tree planting was an act of piety to God and a duty for the future.

A proverb of northwest India declares that three things make a man truly a man—to have a son born to him, to dig a well, to plant a tree. The planting of a tree is a trifling expense, there it grows and costs nothing but time. "Every tree is a feather in the earth's cap; it is a comfort, an ornament, a refreshing to the people. It is a virtue to set out trees and beautify God's earth."

A Toronto Elm Tree

The asking of a distinguished guest to plant a tree is a pleasant way of commemorating his visit; this has been done in the Allan Gardens here by members of our royal family. According to the German fancy no tree planted as a memorial will grow and flourish unless it has a motto given at the time of planting. When the late Baron Bunsen was visiting Lepsius, at Berlin, in 1857, the antiquary requested him to plant a young oak in his grounds. I held the trees, writes Bunsen, while the earth was thrown over its roots, and I said in giving the name:

Oak, I plant thee, grow in beauty; straight and
firm and vigorous stand,
Bunsen is the name I give thee, flourish in the
German land;
For the house of Lepsius blooming, through the
storm grow fair and free,
And a shelter in the noonday to his children's
children be.

It is of trees already grown and come to their maturity that I am interested. "And what a glorious object is a tree, how magnificent on the boundless plain or mighty hillside." But the solitary tree there is scarcely its match for beauty among such objects in the face of the earth. Well might Mrs. Hemans write:

The stately homes of England,
How beautiful they stand,
Amidst the tall ancestral trees,
O'er all the pleasant land!

The elm, the patriarch of the family of shade trees, the majestic, the umbrageous elm. If we notice the frequent occurrence of the elm in situations where without it the landscape would be a blank, but with it exceedingly picturesque, the graceful outlines of its festoons of foliage painted on an evening sky, we cannot but allow that it ranks very high. Few I think of its brethren excel it in grandeur and beauty.

There are many handsome elms in this city, but the elm in the Normal school grounds (west side), a cut of which appears herewith, stands out very prominently. Although now, in winter, it shows many abrupt, twisted and irregular limbs, it is a glorious object in the spring and summer, its full top bending over toward the ground on every side (150 feet from side to side)

with the dignity of the forest tree, and all the grace of the weeping willow, the architecture and handiwork of God, of which the eye never tires, and one leaves it refreshed and delighted.

Individual trees planted by famous men and women are often to be seen by those who visit the old land. About a century ago there was quite a fashion for planting willows. It is recorded the first weeping willow (Salix Babylonica) was introduced into England in a rather novel way by Alexander Pope, the well known poet, who resided at Twickenham, who received a basket of figs from Turkey. He was told that the basket was made from the branches of willows, the very same species under which the captive Jews sat when they wept by the waters of Babylon. Being associated with so much that was interesting he untwisted the basket and planted some of the branches. Happily the willow is very quick to take root and grow, which they did, and one soon became a tree and drooped gracefully over the river in the same manner that its race had done over the waters of Babylon. It is said that from this source all the weeping willows are descended.

CHRYSANTHEMUNS IN THE GARDEN

G. H. MILLS, TORONTO, ONT.

DO not try to grow chrysanthemums on a piece of heavy clay ground. They require a nice, medium loam. If you have such soil on the south side of a fence, without trees or buildings shading it, you are fortunate. Cover the ground with three inches of old manure and one pound of bone meal to a yard. Early in May dig and break up the soil until it is fine, and if the weather is suitable the planting can be done. The plants should be rooted early, say in March, and kept growing in pots until planting time. If you want to grow them to a single flower you can plant them six inches apart in the rows and eight inches between the rows, but you can get nearly as good flowers by taking the top off the plants, as they will break and produce three or four shoots. The time to do this topping is when they are growing nicely outside. When hot weather sets in the plants will require lots of water. A mulch of one inch of old manure will prevent the surface of the ground drying and will hold the

Lilies as Grown in the Great Little Island of Japan.

Now that most people are thinking of Japan as a warlike country it is a pleasure to find that many of our best lilies come from Japan. This shows a bed of lilies as grown in Japan under contract for the Steele Briggs Seed Co., of Toronto, as described elsewhere in this issue.

moisture at the roots. The plants will not thrive if allowed to dry out once or twice, but, on the other hand, it does not do to over-water them. Sprinkling the plants with the hose once a week will keep them clean. If the aphis gets on them take tobacco stems and soak them and syringe with the liquor. Should the chrysanthemum fly appear catch and kill him or he will soon spoil your plants. He is like the fly that spoils the asters, and two or three of them are able to quickly ruin 100 plants.

When the buds appear take all off but the top one, and if you feed with a weak liquid manure once or twice a week it will improve the flowers. If you can change the liquid by using say cow, horse and sheep manure, one after the other, so much the better, but stop all feeding as soon as you see the buds showing color.

Try Madam Bergman the first year, and if you succeed you can try others the following year. You will by then have found out many little things not mentioned here. When the weather sets in cold, say six degrees of frost, secure some dry leaves and cover six inches deep and lay on some brush to keep them in place. In the spring uncover them and they will grow again from the stools around the plants; nice young plants will have rooted. Dig up the lot and take out the young plants. Prepare your ground as before, but this time put in the young plants from your own stock.

MILDEW ON LETTUCE

VEGETABLE growers in the vicinity of Toronto, who are forcing vegetables for the winter markets, have been having considerable difficulty with mildew. One of the greatest sufferers has been Mr. J. W. Johnson, whose greenhouses were visited during January by an editorial representative of The Horticulturist. The mildew causes the leaves of such vegetables as lettuce to wilt and gradually kills the plants.

"By many the cause of the trouble is thought to be in the soil," remarked Mr. Johnson, "but I have proved that this is not the case. I resorted to sterilizing the soil, and at first it appeared as if this was an effectual remedy, but it turned out at a later stage not to be. I am now convinced that it is something in the house, as I have been growing lettuce for years and never had any mildew till I built my present greenhouse. You see I have two greenhouses side by side, in which conditions as to soil, etc., are precisely alike. Mildew has appeared in one and not in the other. One has brick walls, the other wood. The former is damper, and to this the mildew is probably due. I put in underdrains and opened ventilating holes in the walls without producing any effect.

One of Mr. J. W. Johnson's Greenhouses.

"Ventilation has probably something to do with the matter. It is a curious fact that in one greenhouse, where the ventila-

tors open on hinges at the bottom, mildew appears, while in the other, where they open on hinges at the ridge, it has not appeared. Head lettuce appears to be more subject to mildew than bunch lettuce.

THE ONLY REMEDY.

"I have found sulphur treatment to be the only effectual remedy. I mix the sulphur to the consistency of cream and put it on the hot water pipes with a brush. If necessary to apply the treatment before artificial heat is required, a fire has to be lighted to heat the pipes, but the first crop, sown in August, when the air is drier, is not so subject to mildew as those which come on later. Watercress grown in the same greenhouse is sometimes affected with mildew, though it seems to have disappeared this year. The sulphur treatment has also proved efficacious in the case of chrysanthemums.

Vegetable Growing in the Winter

"Another enemy we have to contend with is the green fly. I find 'Nikoteen Aphis Punk' an effectual remedy. I hang it on wires while burning, and the fumes kill the fly. Formerly I used tobacco stems, but they burned the plants. The punk, which comes in rolls, is more expensive, but it is worth the difference.

"In growing lettuce some prefer to sow thick, and thin out, allowing the plants to mature where sowed. I prefer to transplant and get single heads. For bunch lettuce I set four or five inches apart, for head lettuce eight by ten. The temperature should be kept at 70 degrees by day and 50 degrees by night. Bunch lettuce should yield a crop every month; head lettuce every two months. I keep on sowing seed every two or three weeks, thus ensuring a succession of plants. Bad seed this year has interfered with the success of the crop.

"I am looking forward to the cucumber crop, for which I sowed the seed January 16. My cucumbers are ready about the middle of May and keep coming on till July, when the outdoor crop comes in. I also sowed my tomato seed January 16."

"**A Practical Vegetable Growers' Association** would be a good thing," remarked J. W. Johnson, of Toronto East, to The Canadian Horticulturist recently, "provided the members would live up to their agreement. The discussions at their meetings would be valuable, but such an association would be of little use in fixing prices. The farmers about Toronto have taken to raising a great deal of garden truck, which comes into competition with what the market gardeners produce, and as this is a side line with the farmer they are willing to take less than the gardeners could afford to sell for. Under such circumstances it would be unfair to bind the market gardeners in the matter of prices."

Have been a subscriber to The Horticulturist for 10 to 15 years. I appreciate the great improvements that have been made in that time. It has become a necessity in the house. I should miss it very much.—(W. H. Parker, Humber Bay, Ont.

THE MANURING OF MARKET GARDEN CROPS

GEO. CAMPBELL ARNOTT, MEMB. AM. CHEM. SOC., MEMB. ROY. AG. SOC. OF ENGLAND, ETC.

WHILST there is no excuse for the farmer not knowing how to manure his acres most profitably, the market gardener is entitled to more indulgence. The farmer is in the happy position of having placed at his disposal a vast amount of information gathered from carefully conducted experiments of practical men extending over many years both in Europe and on this continent, whereas very little attention has been bestowed upon a rational system of manuring in horticulture and garden crops.

Seeing that the same quantity of plant food, nitrogen, phosphoric acid, and potash required, for example, to produce a given quantity of mangels, grass, sugar beet, and other farm produce, can furnish a similar quantity of cauliflowers, green peas, salad, and similar garden produce, it requires no intricate calculations to see which is the most profitable investment.

The yield in garden vegetables being so much greater, the farmer having to be content with one crop per year, whereas the market gardener endeavors to obtain two or three crops in the same period, it follows that two or three times as much plant food is required per acre as is the case in ordinary field cultivation.

Success in the growing of vegetables depends particularly on the time when marketed, the quality of the product, and the yield per acre. It is a matter of experience that the earlier the vegetables are marketed the higher the price which will be secured, and that the early gathering of one crop permits the growing of another on the same soil the same season. The importance of being first in the market is appreciated by gardeners, and their constant aim is to be first in order to secure top prices. To do this and to be on the safe side the market gardener cannot afford to experiment and run the risk of failure. The increased profit secured by the gain of a week is so large that if there is any way of securing it that method must be utilized to its fullest extent.

HEAVY MANURING A NECESSITY.

The product of the market garden being mostly consumed in the larger cities the gardens are usually situated within a reasonable distance of them, and consequently able to obtain large quantities of stable and barnyard manure fairly cheaply. This, no doubt, explains the reason why heavy manuring has come to be considered a necessity for the successful growing of vegetables.

In the few text books which have been written the authors do not seem to have grasped the subject of manuring thoroughly, for they hardly go beyond naming as artificial or chemical manures such substances as bones, tankage, composts, horn shavings, wool and other refuse matters which are all very slow in their action, and even then all the plant food does not become available.

Slow acting manures are very well for the farmer who is not up to date and whose one crop is drawing its nourishment from the soil for six months and in some cases even longer, but the market gardener needs to get two or three crops off in the same time and cannot afford to depend on these slow acting, incomplete and dilute manures. The use of quickly available, that is, soluble, complete chemical manures has been conclusively proved to be the best and cheapest means of forcing garden crops on a large scale.

INTERESTING EXPERIMENTS.

The most valuable contribution, to our knowledge, on this subject is to be found in the data obtained by that celebrated agricultural chemist, Dr. B. Dyer, at his experiment farm in Kent, England, on market garden crops extending over nine years.

His figures thoroughly endorse those of other observers. To take one vegetable out of the many as an example, viz., cauliflowers. These were manured:

1. With an ordinary dressing of 14 tons barnyard manure per acre.

2. With double the quantity, viz., 28 tons barnyard manure per acre.

3. With 14 tons barnyard manure, supplemented by quick-acting complete chemical manure.

The results were as follows:

No.	Cost of Manure per Acre.	Average Yearly Weight of Crop per Acre.	Average Weight per Head in Pounds.
1.. .	$24 00	14 tons 1680 lbs.	3.16
2.. .	48 00	18 tons 76 lbs.	3.87
3.. ..	39 00	21 tons 784 lbs.	4.52

This was a gain over the ordinary manuring with barnyard manure of nearly seven tons per acre and more than 40 per cent. in the individual weight per head by the addition of quick-acting complete chemical manure costing only $15 per acre; or a gain of more than three tons in the crop per acre and 17 per cent. in the individual weight of heads at a saving of $9 per acre in cost of manure when double the quantity of barnyard manure was used.

In addition to this monetary gain the experimenters make the following statement: "That speaking generally the crops grown with the addition of chemical manure were uniformly of decidedly better quality than those grown with manure alone. That in the case of asparagus, cabbage, cauliflowers, etc., they far surpassed them in succulence, flavor, and tenderness, being uniformly far less fibrous." This improvement in flavor and lusciousness has also been many times observed in the case of tomatoes, rhubarb, and most fruits.

In regard to the question of chemical manures inducing earlier crops, the same authority says: "This was particularly noticeable in regard to strawberries during one of the heaviest crops in recent years. The plot dressed with 14 tons barnyard manure produced 9,408 pounds, and when supplemented with chemical manure the total crop was only increased by 336 pounds. But in the first few days of picking nearly 700 pounds more fruit per acre were gathered from the latter plot, and during this time the market value of the fruit per pound was at least double that of fruit picked during the succeeding days.

It will thus be seen that the addition of a properly manufactured quick-acting chemical fertilizer to the barnyard manure is possessed of three distinct advantages: First, in the production of an earlier crop; second, in a vastly superior flavored crop; third, in a much larger crop obtained at considerably less cost.

It is to be hoped that some of our more advanced market gardeners will make trial of new methods, and from their new experience will most certainly learn to limit their expenditure in purchased barnyard manure and increase that in complete, quick-acting chemical manures as by far the most profitable.

FORCING LETTUCE

"TO grow lettuce successfully," says Mr. J. MacNamara, of Bracondale, Ont., "the seed should be started in the hot bed before February 15. When this is done the plants are ready for setting out by April 10. They should be put out as early as the season will permit. I put them in rows two feet apart and about five inches apart in the row.

"If the season is at all favorable the crop is ready for market by June, but last season it was somewhat later. The best variety for outside growing is Nonpareil, which forms a good head and finds ready market."

FORCING TOMATOES

MARKET gardeners have been giving a good deal of attention in recent years to growing vegetables under glass. Canadian growers of tomatoes will find much to interest them in Bulletin No. 153 of the Ohio Agricultural Experiment Station, which has reached The Canadian Horticulturist. The results will be found in the following summary:

Greenhouse tomatoes, because of superior quality, sell more readily at much higher prices than the southern grown product on the same market.

Tomatoes grown in the spring have been much more profitable than either lettuce or cucumbers grown at the same season.

The average yield has been over two pounds per square foot and the average price 12 cents per pound. Thus the returns have been more than 20 cents per square foot of bench space.

Raised benches have the advantage over ground beds in earlier ripening of fruit.

Sub-irrigation or mulching is essential to success in tomato forcing and it is advantageous to combine both methods.

Ordinarily the tomato plants were set two feet apart each way and trained to two stems, but recent tests seem to indicate that plants set one foot apart each way and trained to one stem will give a higher yield and ripen earlier.

For a spring and early summer crop the seed should be sown in flats about the first of December. The plants may be pricked off into pots or flats, flats being more economical. The second and third shifts should be made into pots.

Under ordinary care plants from seed sown December 1 will be ready to set in the permanent beds about the middle of March, and the fruit will begin to ripen from the first to the middle of June.

Stiff wire, with a hook at the upper end and made into the form of a cork-screw at the lower end, screwed into the soil near the plant, is a very satisfactory device to which to attach the lower end of the twine that serves as a support to the vines.

Strong twine running from the hook in the cork-screw wire to a wire stretched directly over the row of plants and fastened to the rafters, is a more satisfactory support than stakes.

In training plants to one stem all side branches should be kept pinched off. When training to two stems the lowest strong branch, which is usually the one just below the first fruit cluster, should be left for the secondary stem. All other branches or suckers should be kept pinched off.

Hand pollination is a necessary operation in the successful forcing of tomatoes. A wooden ladle and a spatula, with handles about 18 inches in length, are very convenient and helpful in doing this work. A dry atmosphere facilitates pollination.

The temperature of the house should be about 60 degrees Fahr. at night and the day temperature can be allowed to run up to 80 degrees with artificial heat and to 100 degrees or more with sun heat. No whitewash is needed on the glass.

The white fly, or plant house aleyrodes, is a troublesome insect to combat in tomato forcing. It can be controlled by fumigation with hydrocyanic acid gas.

Great care should always be exercised in fumigating with this gas as it is very poisonous and damage to plant and animal life may result from the careless use of it.

The leaf blight of the tomato *(Cladisporium fulvum)* Cooke, is very injurious if permitted to gain a foothold early in the growth of the plants. When present in a mild form toward the close of the fruiting period of the tomato, the damage resulting is in part offset by the earlier ripening of the crop. The Bordeaux mixture has proven beneficial as a preventive of the trouble.

The dry or tip rot of the tomato becomes

very destructive when allowed to have its way. This trouble seldom occurs to a harmful extent when there is an abundance of moisture in the soil.

Baskets holding five pounds are a very satisfactory size in which to market the fruit. When shipped they are packed in crates holding four baskets each.

Tomatoes when forced under glass are more inclined to grow irregular than when grown in the field; hence in selecting varieties for forcing it is important that they be such as naturally grow smooth.

The Beauty and Stone are very satisfactory varieties for forcing. The Beauty is of better appearance than the Stone, but the stone is more prolific and because of greater firmness is better for long distance shipments. The Magnus, because of open foliage, is a good variety to force in ground beds.

Frogmore's Selected Forcing, Earliest of All and Combination are promising sorts but need further trial to prove their true value.

Fertilizers Benefit the Crops

EARL SPENCER, PICTON, ONT.

I AM a full believer in the use of fertilizers, having used them for over 20 years. The first year I applied one ton on yellow field corn. The result was a first-class crop. I receive increased orders every year and never have quite enough. We miss results in some crops every year. I think the seasons have something to do with it, or we do not understand the conditions of every part of our soil, but eight times out of ten we have the largest yields where we use fertilizers. My experience is that vegetables are more tender and sweeter, potatoes are larger and smoother and will not rot as quickly, and that berries are larger and will stand a drought better when fertilizers are used. The canning industry has reached the point where nothing but large yields will pay the growers. This means our soil must be full of plant food. A high grade fertilizer will forward a crop from start to finish, to say nothing about the foul seed that is introduced when ordinary manure is used.

Growing Early Cauliflowers

"TO secure cauliflowers for the early market I start the seed in hot beds about February 15," said Mr. J. MacNamara, of Bracondale, Ont., to The Horticulturist recently. "As soon as weather conditions permit I select a cloudy day and transplant the young cauliflowers and cultivate frequently until they begin to head.

"When the head begins to form I turn the inner leaves over it to form a perfect shade so that the sun will not burn it. If a cauliflower receives a check it is likely to throw a small head and is of no more use, as it will never reach a saleable size. The best varieties are Gilt Edge and Snowball.

"For the early onion market I grow a Spanish variety. I start the seed in hot beds about February 15 and then transplant to rows 30 inches apart and three inches apart in the row, about the last of April or as early as possible. With plenty of cultivation these should be ready for market by July. For onions a sandy loam is better than dark loam, but a good crop can be grown on either."

In weeding out undesirable varieties of blackberries, the following were found too tender for this district, Early Cluster, Early Harvest, Minnewaski and Ancient Briton. —(A. W. Peart, Burlington, Ont.

I neglected to bank around my young trees in the fall a year ago, but when snow came it was tramped around the trees, thus preventing the mice from injuring them.—(A. E. Mather, York Co., Ont.

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

OFFICIAL ORGAN

ONTARIO FRUIT GROWERS' ASSOCIATION.

THE POMOLOGICAL AND FRUIT GROWING SOCIETY OF THE PROVINCE OF QUEBEC.

PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATION.

H. BRONSON COWAN, Editor and Business Manager.

W. G. ROOK, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of it's report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

A DOMINION CONFERENCE REQUIRED.

Fruit growers should press the proposal to hold a Dominion conference. This matter has been discussed and approved of by several of the provincial fruit growers' associations and the assistance of the Hon. Sydney Fisher, Minister of Agriculture, has been promised. The first move must come from the Dominion Department and a gentle reminder, at this time, from the fruit growers may, therefore, be in order.

Such a conference is greatly needed. There are many matters pressing for a solution which the fruit growers are unable to settle satisfactorily through their provincial associations. Several of the provinces are using different sized boxes, barrels and baskets for the shipment of fruit and considerable confusion is sometimes caused thereby. Certain sizes should be agreed on by the different provinces and adopted as the standard Canadian packages. Present conditions are little better than chaotic.

The marketing of fruit is a question which requires a great deal of careful consideration. An effort might well be made to see if anything can be done to ensure growers receiving proper returns from commission dealers not only on this side of the Atlantic but on the other side as well. While the great majority of commission men are perfectly honest experience has shown that some are dishonest, and protection against such is what fruit growers desire. Many important phases of the transportation question could be dealt with more satisfactorily through a Dominion organization than provincially. Some provisions of the Fruit Marks Act and possible additions to it might well be dealt with.

Through the Dominion Department of Agriculture the leading dairy authorities in the different provinces have been enabled to hold two valuable conferences at Ottawa. A year ago the live stock men held a similar gathering. The fruit men should now press their case. No better time or place for such a meeting could be selected than the next provincial Fruit, Flower and Honey Show in Toronto.

CO-OPERATIVE ASSOCIATIONS.

The Ontario Fruit Growers' Association acted wisely last month when it decided to make an active effort to form more local fruit growers cooperative associations. More good will accrue to fruit growers through these local associations than in any other way. This is the best form of cooperation.

After growers have learned how to work together through their local associations the foundation will have been completed for a strong provincial organization. A provincial organization composed of scores of local cooperative associations would be in a position to settle many of the difficulties growers have to contend with in the marketing of their fruit. Without the local organizations to start with it will be a difficult matter to form a strong provincial association. Many of our growers have yet to learn the first simple principles of cooperation.

VALUE OF FERTILIZERS.

Evidence of the great advances that are being made in the methods of growing fruit, flowers and vegetables may be found in the increased attention that is being given to the use of commercial fertilizers. A few years ago the man who purchased fertilizers was considered, by many, to lack in brains. To-day it is recognized that the judicious use of fertilizers, on most soils, is a profitable investment.

The reason there has not been a more rapid increase in the use of commercial fertilizers is due to the many mistakes that have been made by growers. Many growers, when they have heard the use of a certain fertilizer has proved profitable to some of their neighbors, have purchased the same fertilizer and used it in the same manner as their neighbor without stopping to consider the special requirements of their soil. These men, when not satisfied with results, have loudly proclaimed commercial fertilizers to be a fraud when the trouble has really been due to their own ignorance.

The most successful growers are those who study the needs of their soil and of the crops they are raising and who purchase the fertilizers best adapted to their needs. Some prefer to mix their own fertilizers. These men almost invariably make their investments in fertilizers net them excellent returns. An encouraging change for the better has taken place in many firms dealing in fertilizers, as they are now as anxious to sell growers the proper ingredients as the growers are to secure such. The dealers recognize that only by making the use of fertilizers prove profitable can they expect to secure an increase in their trade.

OUR TEN DOLLAR OFFER.

For some months The Horticulturist has been endeavoring to encourage its readers to purchase from its advertisers by offering to give ten dollars each month to the reader purchasing goods to the greatest value from advertisers in each issue. Recently we announced that Mr. Charles Mackey, of Thornbury, had won this money for one month by purchasing goods to the value of $175.78 from the Waggoner Ladder Co. During January Mr. Mackey again applied for the ten dollar bonus, having purchased goods to the value of $31 from J. A. Simmers, of Toronto, but this time he was unsuccessful, as Mr. G. D. Ellis, of Leamington, had exceeded his purchases having purchased bulbs and plants from Mr. Simmers to the value of $37.37 and pots worth $7.23 from the Foster Pottery Co. The value of Mr. Ellis' total purchases were $44.60.

This means that Mr. Ellis received back from The Horticulturist almost one quarter of the total value of his purchases. As a handsome calendar is sent to everyone who purchases from our advertisers one of these calendars has been ordered for Mr. Mackey. The probabilities are that other readers purchased goods of greater value than Mr. Ellis did, but as they did not apply for the ten dollars the money was sent to Mr. Ellis. This should encourage other readers to apply for this bonus this month. Even if you do not win the ten dollars you will be sent a very handsome calendar provided you tell the advertisers you saw their advertisement in The Horticulturist.

The farm labor problem is still a live question. The attention of those of our readers who desire to engage help is called to an advertisement in this issue by the Bureau of Colonization. During the past two years the Farm Labor Bureau has distributed over 10,000 immigrants among the farmers and fruit and flower growers of Ontario. These immigrants have been brought to Canada as a result of the work in Great Britain of the agents of both the Dominion and Ontario governments. People desiring to employ labor should notify the Bureau of Labor. Their applications will be filed and filled as soon as a suitable immigrant asks for work. The department, when necessary, pays the railway fare of the immigrant to the nearest railway station of the person to whom he is being sent. As it is probable the first immigrants will arrive very early this year applications for laborers should be made without delay.

An advertising representative of The Horticulturist recently visited Detroit, Buffalo, Rochester and other United States cities, but was unable to secure any advertising contracts owing to the Canadian tariff. This tariff does not prevent United States fruit papers from obtaining subscriptions in Canada for a year for twenty-five cents. This means that United States horticultural publications are able to invade our subscription field but that we cannot touch their advertising preserves. It is rather hard to be hit twice at the same time by the same stick.

Two matters of great importance to fruit growers are the proper use of fertilizers and spraying. Prominence has been given in this issue to the first of these subjects, and in the March number interesting articles from experts will be published on the importance of spraying. Advertisers desiring special positions should have their space reserved at an early date.

Readers of The Horticulturist who have any spare copies of the April issue, 1903, will confer a great favor if they will send them to this office. The supply is exhausted and more are required for filing purposes.

A long and prosperous life to the recently organized New Brunswick Fruit Growers' Association. The better the fruit growers in the various provinces are united the better for the industry as a whole.

A Question and Answer

Mr. A, an apple operator, purchases apples from Mr. B, a merchant in a small town, who engages Mr. C to do the packing in the orchards of the farmers in the neighborhood. Mr. A pays Mr. B for the apples when they are delivered to him, and Mr. B settles with the farmers. According to the Fruit Marks Act whose name should appear upon the barrels ? In case of fraudulent packing or marking who is responsible ?—(J. B. H.

THE ANSWER

Alex. McNeill, Chief of the Fruit Division, Ottawa.

Mr. B as the owner of the apples at the time of packing should place his brand on the apples. Under the Fruit Marks Act A, B and C might each be prosecuted in case the apples were offered for sale fraudulently marked or packed. A under section 5 for offering for sale ; B under section 6 or 7 for fraudulently packing or marking; and C under section 4 of the order-in-council for fraudulently packing only. It will be noted that C is not responsible for the grade mark and could only be prosecuted under section 7 for the crime which is usually called "overfacing."

SELLING FRUIT IN GREAT BRITAIN ON COMMISSION

The charges that have recently been made that certain British importers of Canadian fruit have long had an understanding through which they have been able to keep down the prices of the fruit led The Horticulturist to write to Mr. W. W. Moore, at Ottawa, Chief of the Extension of Markets, to see if some of the Dominion Government's agents in Great Britain could not be utilized to investigate the truth of these charges. The following reply has been received from Mr. Moore :

Some time ago I noticed in the press a statement by a Mr. Cochrane, of Boston, in which he charged the importers of fruit in Great Britain with making fraudulent returns to apple shippers on this side of the water. As Mr. Cochrane's statement was copied by the Canadian newspapers I presume this is the matter to which you allude.

At the time Mr. Cochrane's statement appeared I noticed it, but did not consider it worth an investigation. I know something of the methods whereby the leading fruit brokers in Liverpool, London and Glasgow dispose of the apples they receive on consignment, and, as far as the principal firms are concerned, I do not believe they make fraudulent returns or act dishonestly in any way.

In Liverpool there are six firms who dispose of apples by public auction. From what I know of the manner in which these sales are conducted I do not think that it would be possible to form a combine to keep down the prices without such an arrangement becoming public. Of course, apart from the six firms I mentioned, there are a number of smaller concerns in Liverpool, each of whom handle considerable quantities of imported apples during the year. Some of these may be crooked and make false returns, but I have never heard any specific complaint regarding the business methods of any of the British fruit dealers.

This department has not "agents" in Great Britain in the proper acceptance of the term, but we have inspectors at the chief ports, whose duty it is to observe and report regarding the condition in which Canadian perishable produce is landed from the steamers and the handling it receives during the process of discharge. These inspectors are stationed at Glasgow, London, Bristol, Manchester and Liverpool. The Chief Inspector is Mr. A. W. Grindley, who is stationed at Liverpool and who has local supervision of the work of the other inspectors. Mr. Grindley is a Canadian who has held his position for over six years. He is wide awake and energetic, and is thoroughly informed regarding the selling end of the apple trade. I shall write him to-day and bring the charges, referred to in your letter, before his attention, and as soon as I receive his reply I shall transmit it to you.

A BRITISH OPINION.

The charges which have been made have attracted attention in Great Britain. The following clipping from the Manchester Daily Despatch may be of interest :

A strong appeal has been made on behalf of the fruit growers and fruit shippers of Canada to the High Commissioner to investigate certain grave accusations, formulated very definitely on the other side, against the foreign fruit trade of Liverpool, Manchester, and London. It is alleged that the English importers, who secure consignments of fruit through agents in Toronto, Montreal, Nova Scotia and Boston at prices to be determined at auction in England, have manipulated the market in collusion with the fruit salesmen of the auction rooms. By secret arrangement among the sellers and buyers concerned, the fruit is "knocked down" at prices that are unremunerative to the Canadian exporters.

Such an impeachment of the honor of gentlemen engaged in a most reputable branch of commerce, is not supported so far by sufficient evidence to warrant any special investigation by the Canadian authorities. Complaint of the low prices obtained for colonial fruit in the English market is chronic, and this year's slump in fruit, consequent upon an exceptionally abundant season, as it affects the exuberant imagination on the other side, is reflected, it is thought, in this daring indictment of the English dealers in fruit on the ground of bogus sales and control of the market by a dishonest fruit ring. The matter has gone too far in Canada, however, to warrant the trade involved in treating the charge with contemptuous silence.

PACKING APPLES IN BOXES FOR EXPORT

ALEX. C. BIGGS, BURLINGTON, ONT.

Every fruit grower with a spark of pride for the fruit industry of this country must feel humiliated by the article which appeared in the January number of The Horticulturist, on Packing Apples in Boxes, by J. B. Thomas, of London, England.

The article gives the impressions of a very prominent apple dealer upon the new and growing custom of packing apples in boxes, which he discourages, not because it is not a good style of package but because Canadians do not know how to pack apples in boxes. His words are :

"I have observed the Canadian attempts at packing in boxes, and, with few exceptions, I may say that the less we see of such boxes and such packing the better for those interested in shipping apples from Canada."

I do not agree with Mr. Thomas in the view that because we are not proficient in the packing of apples in boxes we should cast them aside. If such a rule had been applied to barrels years ago perhaps we should not be using them now. The box has its place for first-class fruit suitable for a certain class of customers, and the barrel for both first and second grades for those who favor it.

The day is coming when the markets will require that the best apples be laid down without bruising, and new appliances and methods will be adopted that will make it possible to do so. The box seems to be the best package for that purpose. I am in favor of the central packing house system, which can only be secured by co-operation.

Unpleasant Truth From a Friend

A Canadian in Paris, France, writing to the Orillia Packet makes the following remarks about the Canadian fruit sold in that city:

All the hawkers' barrows lately have been filled with "pommes de Canada"—Canadian apples, which are loudly cried as such. In fact for a day or so last week one heard "Canada" on all hands. Some Canadians I know said they were ashamed to have it announced such horrid looking stuff came from the Dominion. The apples were octagonal, not rounded.

When will Canadian packers learn to put up their stuff properly? Where the apples touch each other there is a flattened space which at once starts rot. The consequence is the apples have been selling at 10 and 20 cents a pound, while the French hand-picked and properly cared for apples fetch more than that each. If oranges are wrapped in paper why can't apples be? Properly delivered here the best Canadian apples would fetch six to eight cents each, judging by what the local fruit realizes.

Gardeners and Fruit Growers Unite

The Gardeners' and Fruit Growers' Association of the Hamilton district held a general meeting in Hamilton January 21. This is a live association, and the first gardeners' organization in conjunction with fruit growers in Ontario. The members would like to see a department in The Horticulturist on vegetable growing. This organization expects to take a prominent place among other conventions in the near future.

The proposal to place the Dominion Fruit Division under the Dairy Division was strongly opposed, and the following resolution was unanimously endorsed by the association: "Resolved, that this, the Gardeners' and Fruit Growers' Association of the Hamilton District disapproves of the proposed plan of the Dominion Government to place the fruit and dairying divisions under one head. We are of the opinion that such an act would materially cripple the fruit growing industry, and that the fruit division is of sufficient importance to have a head controlling that department; that this industry is occupying such a prominent place in the commercial trade of the country and should not be made subordinate to any other department. We strongly urge on the Hon. Sydney Fisher to exercise his influence in favor of the fruit growers of this country and to prevent the proposed union of these two divisions."—(W. C. Webster.

We have advertised in The Canadian Horticulturist for several years and find it a very good medium for reaching fruit growers.—(The W. A. Freeman Co., Hamilton, Ont.

English Fruit Market Depressed

W. A. CLEMONS, OTTAWA.

The Extension of Markets Division, Department of Agriculture, Ottawa, is in receipt of a letter from Geo. R. Meeker & Co., receivers of Canadian and American fruits, Covent Garden, London, in which the following paragraphs occur: "The great thing is to get apples over here packed as tightly as possible, and, above all, the fruit should not be in any way damaged by frost. Our market is in a state of collapse, owing, in the main, to badness of trade, and also to the fact that there are very large quantities of apples that have been placed in cold storage in Southampton. This experiment is not panning out well, and the prices are so low that we cannot imagine that they can be otherwise than ruinous. Who is the loser in the transaction we cannot say. Somebody must be getting hard hit, and we believe that will be the first and last attempt at cold storage in this country, unless exceptional opportunities present themselves in the way of short crops on this side."

The Liverpool market is also very demoralized, our agent there telegraphing us as follows: "Market very demoralized, but anticipate revival shortly; great danger in shipping frosted fruit, which prejudices trade generally."

Edward Jacobs & Sons, fruit brokers, Hamburg, Germany, write under date of January 12: "The prospects are very favorable for good apples; satisfactory prices may be realized, and we hope that some Canadian shippers will give us a trial."

A Valuable Publication.—The Horticultural Directory for 1905, recently published by the Journal of Horticulture, of London, England, is full of useful and well arranged information for all interested in horticuture in connection with trade in Great Britain. The directory contains complete lists of London seedsmen and florists, as well as in all the larger cities in Great Britain, lists of nurserymen, gardeners, and horticultural builders, engineers, implement makers, etc., making a most valuable reference for horticulturists. Horticultural societies of any prominence, with their officers names and addresses, are given, not only for Great Britain, but all over the continent, and America as well, including Canada. The value of the work can be somewhat guaged when it is known that the directory shows an increase of upwards of 4,000 new names and addresses since 1894.

Allow me to congratulate you on the excellence of the report furnished in the December issue of The Horticulturist, of the annual convention of the Ontario Fruit Growers' Association.—(R. M. Palmer, Victoria, B. C.

THE ANNUAL MEETINGS OF HORTICULTURAL SOCIETIES

The annual meeting of the Port Hope Horticultural Society was well attended, considering the weather. Those present were enthusiastic in their enthusiasm. therefore a profitable meeting was the result. The following officers were chosen: President, F. Outram; secretary and treasurer, J. G. Jackson. A committee was appointed to wait on some of the owners of vacant lots to seek permission to transform them from their dilapidated condition. It was decided to ask the town council for financial aid toward carrying out the work for the year. It was voted to continue to subscribe for The Horticulturist.—(J. G. Jackson, secretary.

MIDLAND SOCIETY.

The meeting of the Midland Horticultural Society was a decided success in spite of a heavy storm. There is a growing interest in horticulture in the town, owing largely to the free distribution of seeds to the public school children. Election of officers resulted as follows: President, F. Cook; secretary and treasurer, E. H. Piggott. We have decided to distribute more seeds this year and to put out flower beds at the schools. A liberal share of the members have sent in their names for The Horticulturist for 1905.—(E. H. Piggott, Sec'y.

PICTON SOCIETY.

Picton society elected the following officers: President, Thomas Bog; secretary and treasurer, W. T. Ross. The business brought before the meeting and plans for work this year were discussed with much enthusiasm. It was left with the secretary to ascertain the desires of members as to their receiving plants, seeds or bulbs for the spring distribution, and their preference for a magazine for the year.

GRIMSBY SOCIETY.

Each member of the Grimsby Horticultural society voiced enthusiastically the sentiment of progress. A committee of seven was appointed to select two plants for the spring distribution; another committee was appointed to arrange for a series of house meetings, at which it is proposed to have discussions on subjects pertaining to. flowers, fruits, etc. Mr. Adam Rutherford was elected president and J. W. Brennan secretary.—(J. W. Brennan, Sec'y.

KINCARDINE SOCIETY.

The Kincardine society elected officers as follows: President, William Walsh; secretary and treasurer, Joseph Barker. Owing to stormy weather but few were present at the meeting, which however lacked nothing in interest and enthusiasm. The president's and secretary's reports showed that satisfactory progress had been made. Mr. Barker expressed the belief that the membership will be increased this year to at least 150, while President Walsh was of the opinion that the 200 mark should be reached. The treasurer's financial report showed receipts for the year were $281.40 and expenses $274.54. About 125 copies of The Horticulturist were distributetd among the members in 1904, and the secretary reported that "The Horticulturist is highly prized, as is evident from the anxiety manifested by members when any of the numbers happen to go astray."—(Jos. Barker, Sec'y. (Copies of both the president's and secretary's reports were received by The Horticulturist, but had to be omitted owing to lack of space.)

OTTAWA SOCIETY.

The Ottawa society elected W. G. Black president and J. F. Watson secretary and treasurer. The improvement of the city on horticultural lines is the aim of this society, and the city council is to be asked for aid in the shape of a grant of money and legislation. The matter of pruning and planting trees on the streets of the city was thoroughly discussed. The society has done good and great work in the past, but is in need of money to extend its influence. Most of the money received by the society is paid out in premiums to the members. During 1904 one annual meeting, six general meetings and exhibitions, and six directors' meetings were held. Cash prizes amounting to $301.75 were paid, and the balance in the treasury is $28.85. The membership was 226.

ORANGEVILLE SOCIETY.

The Orangeville Horticultural society elected Mr. Robert Mann president and reappointed Mr. Andrew Hill secretary-treasurer. The president reported that fruit trees, ornamental shrubs and flowering bulbs had been distributed to the value of $106.55, copies of The Horticulturist had been sent to the members, together with a most interesting and useful pamphlet on bulb culture, and bound copies of the annual report of the Fruit Growers' Association. The society has kept alive an interest in horticultural matters in the neighborhood and has been able in many ways to assist in the improvement of the home garden and orchard. The total disbursements, in horticultural effort, amounted to over $245. A committee was appointed to select the plants for distribution this year.—(A. M. Hill, Sec'y.

ELMIRA SOCIETY.

The Elmira society elected Mr. R. B. Martin president and C. W. Schierholtz secretary and treasurer. The membership was 61, and it is hoped that this number will be materially increased this year. The society intends to hold a flower show during the summer, and meetings for the discussion of floricultural and horticultural subjects. A distribution of seeds and plants will be made in the spring. A balance of $55 is on hand.

WOODSTOCK SOCIETY.

The Woodstock society elected for their officers: President, Mr. R. W. Woodruff, and secretary and treasurer, Mr. M. Dawes. A vote of thanks was given to Mr. J. S. Scarff, the retiring secretary, for his untiring and earnest efforts. The president's address showed that the society had endeavored to secure a park commission, composed of members outside the

city council, which it was the opinion would be a long step in advance of the present system. In all probability the society will take the matter up at a later date. The annual flower show was held in August and was the best ever held in the city. The society expended during the year $86.09 on plant distribution and $90.80 on horticultural publications, The Horticulturist being a favored one. The president suggested that it would be a wise move for the members to take another step forward by putting the care of the parks of the city under a more permanent management. A balance of $58 was shown in the treasury.

LONDON SOCIETY.

The London society elected as president Mr. Charles James Fox, and secretary and treasurer, Mr. R. W. Rennie. During the year five meetings were held for business, in addition to the annual meeting. Two very successful flower shows were given in the summer. At both these shows the displays were very fine. Two distributions were made to the members in the spring, three named perennial phlox were given, and a good supply of aster seed. In the fall each member received 25 choice tulip bulbs. "Gardening," a semi-monthly publication, was subscribed for and mailed to each member during the year; it proved to be too professional in its character and entirely unsuited to the requirements of the members. It will consequently not be renewed this year. In the early part of the year a civic improvement society was organized. To it was transferred the management of the garden competitions and the awarding of prizes for the best kept school grounds in the city. This new society has already been able to effect some of the improvements aimed at.

OWEN SOUND SOCIETY.

The meeting of the Owen Sound Society was rather poorly attended, but much enthusiasm and interest was shown. Dr. Allan Cameron was chosen as president, and Miss Lou A. Harrison was re-elected as secretary and treasurer. The meeting February 24 will be an interesting one, the subject for discussion being How best to beautify our cemetery and parks. Subjects for future meetings will be arranged at an early date.

SIMCOE SOCIETY.

The Simcoe society devoted itself last year to giving out trees, shrubs, plants, seeds and small fruits, thus improving the homes of members, and aiding others in the same work and beautifying the town. Only one meeting was held, and that in winter, when the Department of Agriculture sent the speakers. We distributed to school children many garden and flower seeds, and they were much interested in the growth and care of the same.—J. Thos. Murphy, Sec.-Treas.

Two Year Old Tea Roses (for Easter blooming)

GERANIUMS (newest varieties), GLOXINIA and TUBEROUS ROOTED BEGONIA BULBS, PIERSON and BOSTON FERNS, BEGONIAS, AZALEAS (in bloom), OTAHEITE ORANGES (in fruit), CANNAS (dry roots), CHRYSANTHEMUMS (large stock of young plants in a few weeks).

Quotations cheerfully and promptly furnished.

The Webster Floral Co., Limited, Hamilton, Ont.

Florists, Nurserymen and Seedsmen

The Capelton Chemical & Fertilizer Co'y

ESTABLISHED 1890

Brands Manufactured: Royal Canadian, Victor, Crown, Corn, Reliance, Capelton

You should use Fertilizers on everything from House Plants to Field Crops, as it pays to get out of the soil all it can produce. The only way to do so is to feed the plants with fertilizers as you do your stock. NO WEEDS, NO CUT WORMS, MUCH LARGER CROPS WITH IT THAN WITHOUT.

Help build up Canada by using Canadian goods as everything used by us excepting Muriate of Potash is produced in Canada. The Government Reports for past years show that we give better value for your money than any Fertilizers on the market.

We never lose a customer who once uses our goods. Give us a trial order for a few hundred pounds, say $5.00 worth, telling us what you want to use it for. We guarantee you will be regular customers ever after. If there is no agent in your section, write direct. Agents wanted in every county and township in Canada.

The Capelton Chemical & Fertilizer Co., Buckingham, Que.

THE TORONTO SOCIETY.

At the annual meeting of the Toronto Horticultural Society H. R. Frankland was elected president; W. G. Rook, first vice-president; Geo. Musson, second vice-president; Charles E. Chambers, secretary, and W. G. Rook treasurer.

ORILLIA SOCIETY.

Orillia's society elected C. L. Stephens president and T. W. Robbins secretary and treasurer. The treasurer's report showed an expenditure of $168.65, with receipts of $187.83. Membership for the year was 81. There were 586 entries at the fall flower and fruit show, and $175 was given in prizes. The society has decided to supply the pupils of the various schools with seeds and to offer prizes for competitions for flowers grown from these seeds. It was proposed to renew the efforts to have the streets, lawns, etc., kept more tidy and uniform.

LINDSAY SOCIETY.

The attendance at the annual meeting of the Lindsay society was not large. The secretary's report showed a balance on hand of $34.50. The officers elected were: President, Mr. Robert Chambers, and secretary and treasurer, F. J. Frampton.

CAYUGA SOCIETY.

By paying $1 every member of the Cayuga Horticultural Society will be entitled to select one of the following: The Canadian Horticulturist for 1905 and seven Norway spruce 2 feet high, or five shrubs of leading varieties, or 65 gladiola, or 33 choice gladioli; second, seven Norway spruce trees 2 feet high, and 65 gladioli or 33 choice gladioli, all of which will be supplied by Campbell Brothers, of Simcoe; or third, one dozen bedding geraniums, mixed colors, and one dozen coleus or ageratum.—(A. K. Goodman, secretary.

Toronto Gardeners and Florists

The newly elected officers of the Toronto Gardeners' and Florists' Association are George Douglas, president; E. F. Collins, secretary, and Geo. Mills, treasurer. The representatives to the Industrial exhibition are J. H. Dunlop and W. H. Foord. The above are all active members and the association should have a successful year.

The executive has prepared an interesting program of subjects for the monthly meetings. The annual carnation show will be held in St. George's Hall, February 16, when the exhibits of roses and carnations promise to be the finest ever seen in Canada.

Am very well pleased with The Horticulturist. Hope you may be able to continue improving it in the future as in the past.—(T. A. Chapman, Baltimore, Ont.

Experience Counts

Having spent 25 years in the fruit business, we know fairly well the wants of our customers. Scions and buds are taken from bearing trees in our orchards. Therefore, we know what we grow.

Buy the Best

We grow first-class stock and always send everything **True to Name**, because we believe **Honesty is the Best Policy**; and our system of labelling is perfect.

Apple Trees

Largest and best stock in Canada.

All standard varieties of **FRUIT TREES, ORNAMENTALS, PLANTS** and **VINES**

Salesmen Wanted. Write for Illustrated Catalogue.

E. D. SMITH, - - Winona, Ont.

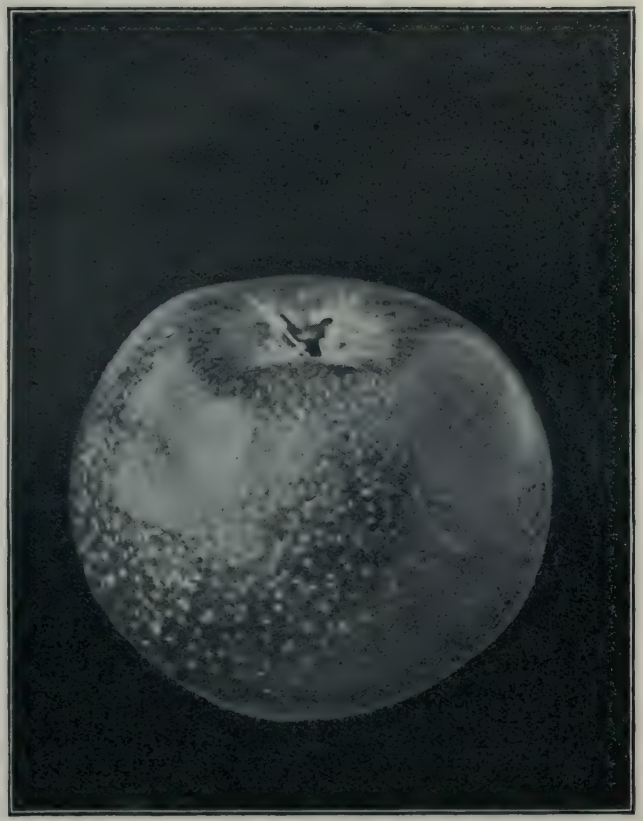
MARCH

The stormy March is come at last.
With wind, and cloud, and changing skies;
I hear the rushing of the blast,
That through the valley flies.

Ah, passing few are they who speak,
Wild, stormy month! in praise of thee;
Yet, though thy winds are loud and bleak,
Thou art a welcome month to me.

For thou, to northern lands, again
The glad and glorious sun dost bring,
And thou hast joined the gentle train
And wear'st the gentle name of Spring.

BYRANT.



The Spencer Coreless Apple Described in This Issue.

The Coreless Apple in the Basket Sent to the King.

(Photographs furnished exclusively to The Canadian Horticulturist.)

The Canadian Horticulturist

MARCH, 1905

VOLUME XXVIII NUMBER 3

THE CORELESS APPLE*

SAMPSON MORGAN, BROADSTAIRS, ENGLAND.

I HAD the honor of introducing the first coreless and seedless apple to Great Britain. Its arrival evoked great interest among all classes. I have been asked to put on record an account of this wonderful novelty, and for Canada have selected The Canadian Horticulturist for the purpose. The apple was sent to me by the secretary of the Spencer Seedless Apple Co., of Colorado, at the wish of Mr. Spencer, the introducer, with instructions to bring it before the notice of the British public.

A box containing the first coreless apples ever received in England was delivered to me at Broadstairs, January 22. The first specimen taken from the box I put aside for the King. In the near future seedless and coreless apples will be on sale in the fruit shops of every city in the United Kingdom.

The tree produces a cluster of small green leaves, like a disorganized bud. It is here that in due course the fruit forms. There being no petals or fragrance the codling moth, which has wrought great devastation in our orchards, passes it by, and thus few, if any, of the coreless apples are marred or injured by the grub of that pest. The trees are being propagated from buds, no seeds being available.

The permanency of the seedlessness of the Spencer apple is beyond dispute. Over 2,500 trees are already in hand, and the stock is being extended. Arrangements are in progress to ensure ample supplies of these wonderful novelties in England.

The Spencer seedless apple is not the first seedless apple which has been grown. Probably half a dozen trees have appeared at different places bearing apples without seeds. Besides, the apples which grew on the original trees had little juice, and being small, were of no commercial value. The originator of the Spencer seedless apple first succeeded in getting five trees which yielded fruits practically without seeds. From these five trees he budded and grafted to see if they would reproduce themselves. He has now in his orchard trees four, six and eight years old bearing seedless apples.

As these trees stand in close proximity to ordinary apple trees, a small percentage of the apples on the seedless trees have one and sometimes two or three seeds, but they are just as apt to appear in one part of the apple as another. Mr. Spencer has found a seed within one-eighth of an inch of the outer peeling of the apple, far removed from its core. It is impossible for the Spencer seedless apple to bear seeds of their own accord. The seed, which is occasionally found, is produced by the pollen from the common apple trees being carried to the

* In the April issue of The Horticulturist will appear an article by Mr. W. T. Macoun, Horticulturist of the Central Experimental Farm, Ottawa, in relation to seedless apples that have been grown in Canada.

seedless trees by bees or the wind. Wherever this pollen is deposited, conditions being favorable, will be found the seed. There is a small quantity of pollen, also a stamen, as in the ordinary apple tree, and probably not over one-twentieth the amount of pollen on the seedless buds that there is on the common tree blossoms.

MAY REVOLUTIONIZE APPLE GROWING.

The originator claims that his are the only seedless apple trees in existence which one can bud and graft from, and obtain trees that will produce seedless apples; also that there are no other seedless apples of any commercial value. These apples from the seedless trees grow as large as the ordinary winter apple and contain as much juice. They are red when fully matured, and have large strawberry dots. The flesh is firm and they are excellent keepers.

It has been proved that the further we get away from the original proposition (five trees) the larger and better is the fruit. The seedless trees are very prolific bearers. There is an absolute saving of about 25 per cent. in the seedless apples on account of there being no waste except the peeling. This fact cannot be over-estimated when it comes to evaporating and drying the fruit.

For the hotel and restaurant trade, as well as for family eating and cooking, the absence of seeds or seed pockets is a great convenience. In the green apples, from the time they first appear until one-half or two-thirds grown, traces of the seed pockets may occasionally be found. By the time the apples reach full maturity, except in rare cases, this semblance of a seed pocket becomes absorbed into the solid meat of the apple. There being no seeds in the apple, there is no need for seed pockets, consequently nature eliminates them of her own accord.

Mr. Spencer has 50 bearing trees in his orchard, and the younger trees (four years old) yield apples which have only a yellow fibrous substance, of no toughness whatever, representing the seed pockets. There is only one variety of seedless apple, and as that is quite distinct from any other, it has been called the Spencer seedless apple. Experiments are being tried on 12 or 15 of the best varieties of apples, and possibly in a few years the leading apples of commerce will be seedless. The Spencer seedless apple tree may revolutionize the apple industry of the world.

Marketed in large quantities these apples, even when they are no longer novelties, will command five dollars a bushel wholesale. At that price, if the trees are as prolific as they are stated to be, the apple should prove far more profitable to growers than even the Ribston pippin. For some years the trees, and also the fruits, will be very expensive. Even if the sanguine expectations of their originator are realized their introduction will not injuriously affect apple growing industries carried on by experienced cultivators, but it will happily drive from our markets those inferior and out of date sorts which are the chief cause of those periodic market gluts so ruinous to fruit producers.

For the commercial grower the new apple is admirably suitable. When available hundreds of thousands of bushels can be disposed of each season easily at excellent prices. A late apple of the color of the coreless apple is an undoubted acquisition to the trade.

By desire, this record of the introduction of the coreless apple to Great Britain, as published in The Canadian Horticulturist, will be filed by various state horticultural societies and colleges in Canada, the United States, England, Ireland, Scotland and Wales.

The apple sent to King Edward was photographed in two positions before being despatched to Windsor Castle. In acknowledging its receipt His Majesty's private secretary wrote: "The King has been much interested in seeing the apple which

Mr. Morgan sent." The private secretary also asked me to let him know "when any more of the seedless apples arrived in England from Colorado."

Two of the apples were disposed of by auction by Messrs. Garcia, Jacobs & Co., the well known Covent Garden fruit salesmen, in aid of a fund being raised for the "Starving Poor of West Ham." An immense crowd of buyers assembled to watch the proceedings. The two apples were sold for 60 shillings, which is equal to 3,000 shillings a bushel, the highest price ever paid for apples in any market in the world.

COOPERATIVE SPRAYING BY GROWERS

ALEX. M'NEILL, CHIEF OF THE FRUIT DIVISION, OTTAWA, ONT.

IN the spring of 1903 the Fruit Division, Ottawa, determined to test the efficiency of power spraying. An outfit with a gasoline engine was purchased from the Spramotor Company, London, and placed in the charge of Fruit Inspector Carey and Mr. J. C. Harris, at Ingersoll. Contracts were taken from the farmers between Ingersoll and Woodstock to the extent of about 3,000 trees, and during the season these trees were sprayed four times.

The results were quite satisfactory; nevertheless, the demonstration was continued in 1904 for the purpose of confirming the experience of 1903. Again 3,000 trees were contracted for and sprayed four times at a cost of 5c. per tree for each spraying. The object of these demonstrations was not to prove that spraying was a good thing so much as to devise some method whereby farmers would be induced to spray their trees. The result has justified the experiment. The outfit will remain in Ingersoll this year, but will be operated by private individuals, a result which was anticipated when the demonstration was undertaken.

The result of the work in Ingersoll has demonstrated two or three points very conclusively. First, that power spraying is not materially cheaper than spraying by hand; second, that power spraying is more effective than hand spraying; third, that it is so much more convenient that farmers, who could not be induced to spray with hand pumps, will readily pay even more than the commercial rate in order to have the work done for them. And once more, it has been demonstrated that spraying is one of the best paying operations in the care of an orchard.

The season of 1904 developed fungus to a very serious degree in the county of Oxford. Unsprayed orchards did not usually yield more than 10 or 15 per cent. of apples that would grade as No. 1. This rendered it almost impossible to secure buyers in the Ingersoll markets during the fall months and, as a consequence, many unsprayed orchards were never picked, and those that were picked yielded only about the price of the picking and packages. The sprayed orchards, however, yielded about 90 per cent. of No. 1 fruit, and without an exception were all sold, some of them not at a high price but at a price that was deemed satisfactory for the season.

The results may be put another way. Accepting the average of two barrels per tree, the cost of spraying would be 10 cents per barrel. The difference in the price obtained for the sprayed fruit would be at least 75 cents per barrel on the tree, leaving a net profit of 65 cents per barrel for spraying. This is putting the financial side of it somewhat moderately. It is a common excuse with farmers for not spraying that there is too much other work to do. To such farmers I would say that there is no work on the farm that will yield so large a dividend as this of spraying; consequently it will pay much better to neglect other work rather than to neglect the spraying.

GROWERS MUST BE PREPARED TO SPRAY

RICHMOND F. ROBINSON, ST. CATHARINES, ONT.

TO succeed in fruit growing a man must be prepared to spray and spray carefully and regularly just as he prunes or cultivates his orchard. Apart from the advantage to the fruit spraying is of great benefit to the trees. They are more thrifty and hold their foliage considerably later in the fall.

It is impossible for me to state how much any fruit was increased in value as a result of spraying last season, but I do know that I had no unsaleable fruit on my farm last year, and that by the use of lime and sulphur I had good crops of plums and peaches. Though curl leaf was prevalent I had none on any of my peach trees, except 40 or 50 two-year-old Yellow St. Johns which I had not sprayed.

Mr. Blaikie, a neighbor, and I purchased a Niagara gas sprayer, worked by liquid carbonic acid gas, last February. I cannot say how many trees we sprayed in an hour, but we put 600 gallons, wine measure, of lime and sulphur on in a day, and we were novices. The mixture was applied very thoroughly even wastefully. The lime and sulphur mixture is hard to put on as it clogs the nozzles. We had to fill the tank bucket by bucket instead of elevating the barrels or pouring in by means of a long funnel, as we shall do in future. With sufficient nozzles 1,200 to 1,500 gallons can be put on by three men in a day. The machine saves time, labor and material. I had previously used a hand sprayer, and if I had to pay twice what I did for the gas sprayer I would do it sooner than waste time with a hand sprayer, which is as much behind the times as a hand reaper.

Lime and sulphur will not only control San Jose scale, but make it a blessing in disguise, as those who do not spray will inevitably go to the wall. If I had no scale I would spray with lime and sulphur as a fungicide. By applying the Bordeaux mixture in time last season I succeeded in checking a good deal of rot in my plums and sweet cherries. If applied early and frequently the Bordeaux mixture will check the black rot in the grapes.

NEW BRUNSWICK FRUIT GROWERS ORGANIZE

W. D. ALBRIGHT, SUSSEX, N. B.

AS secretary of the newly organized New Brunswick Fruit Growers' Association it is my duty to inform The Horticulturist of what has been done towards organizing the horticultural interests in this province. In December a meeting of maritime horticulturists was held in the Winter Fair building, Amherst, where the New Brunswick Fruit Growers' Association was organized with provisional officers as follows: President, J. C. Gilman, Fredericton; vice-president, Geo. McAlpine, Gagetown; secretary-treasurer, W. D. Albright, Sussex, and a director for each county.

The next meeting was held at Fredericton, January 27, the evening following the convention of the New Brunswick Farmers' and Dairymen's Association. A constitution was adopted along much the same lines as that of the Nova Scotia Association and officers were re-elected with the addition of a separate treasurer in H. Wilmot, of Oromocto. A profitable session was held. The membership numbers 32, and the balance of funds on hand is $27. It is hoped a grant will be received from the local government and to carry on an active campaign of educational and cooperative work. Among the things to be taken up is the purchase of nursery stock for members. Only

reliable firms will be dealt with, and thus one of the most common sources of vexation and loss will be avoided. Cooperation in packing, marketing, etc., will be considered later. Two or three orchard meetings will be held during the summer and a convention about the end of the year in the fruit sections of the province.

Pruning Cherry Trees

A cherry orchard (sour), 16 years old, set 16 feet apart each way, has grown up so high as to make the fruit ripen unevenly and hard to pick. Is it safe to head back the topmost branches, say six feet, of course painting the wounds made ?—(R. Robinson, St. Catharines, Ont.

W. T. Macoun, Horticulturist, Experimental Farm, Ottawa: Severe pruning of cherry trees causes gumming of the trees and weakens the trees considerably. If it can be avoided, it is not wise to prune cherry trees severely. In the present case it would be well to prune a few trees the first season and see the effect. If no gumming occurred, the work could be continued the following year. Much depends on the health of the trees, and if they are as vigorous as stated I do not believe that severe pruning would injure them much.

Prof. H. L. Hutt, O.A.C., Guelph: This is the inevitable result of the common mistake of planting trees too closely together. Severe heading back will remedy matters to some extent, but it is an injury to the tree. Such trees may be pruned back severely and still form good heads. Mr. Peart, my assistant, says he once had a similar case to deal with, and the main branches were cut back to stubs two or three inches in diameter and only a few feet from the trunk. Yet these trees have formed new tops and have done well. This, of course, involves loss of crop for two or three years.

Pro. L. R. Taft, Michigan Agricultural College: A great deal will depend on the growth and shape of the trees. While severe pruning of the cherry is not advisable, it might be well ,under the conditions mentioned, to head back the branches, but I would hardly recommend the removal of as much as six feet of the growth unless there are numerous side branches lower down on the limbs.

Spraying for San Jose Scale

ROBERT THOMPSON, ST. CATHARINES, ONT.

The San Jose scale is slowly but surely spreading every season into fresh orchards and widening the infested areas; but, judging from the results of thorough spraying, I can safely say that the scale can be held in check and the trees kept healthy and the fruit almost entirely clean. Spraying with lime and sulphur in the proportions of 15 to 18 pounds of lime, and the same quantity of sulphur, to 40 gallons of water, and boiling two to two and a half hours, has given as good results as any mixture.

In several instances by using 20 pounds of sulphur, 25 pounds of fresh lime and 12½ pounds of sal soda to 40 gallons of water, and allowing the lime and soda to boil with its own heat for three-quarters of an hour, slaking the lime with hot water, excellent results have been secured. One point of great importance is that the spraying must be thoroughly and carefully done. This mixture is cheaper and is not so hard to apply as when 40 pounds of lime to 40 gallons of water is used. It is not necessary to use the lime and sulphur as hot as it was used two years ago.

The law regarding the scale is sufficient protection if it is enforced. Infested trees, when the owner will not treat them, should be taken out and burned. The San Jose scale is not much worse to combat than the potato bug if taken in time and if spraying is done once a year. The man who will not spray will soon lose his trees.

Importations of Vegetables

THE following statement, showing the quantity and value of vegetables imported into Canada from the United States, and entered for consumption at the ports of Montreal and Toronto during the fiscal year ended June 30, 1904, and the duty collected on each item, has been laid on the table of the House of Commons at Ottawa by the Minister of Customs:

MONTREAL.

JULY TO DECEMBER, 1903, INCLUSIVE.

Articles.	Quantity.	Value.	Duty.
Melons ..... No.	17,597	$ 764	$ 191.00
Potatoes .....Bush.	1,641	2,370	446.15
Potatoes, Sweet.. "	3,023	2,400	302,30
Tomatoes, Fresh. "	15,142	16,938	4,722.20
Tomatoes, Can'd. Lbs.	292,863	10,539	4,392.94
Vegetables, Other $		14,106	3,526.50
Total, 6 months		$47,117	$13,581.09

JANUARY TO JUNE, 1904, INCLUSIVE.

Articles.	Quantity.	Value.	Duty.
Potatoes .....Bush.	1,793	$ 1,815	$ 268 95
Potatoes, Sweet .. "	433	774	43.30
Tomatoes, Fresh . "	9,178	23,325	4,368.10
Tomatoes, Canned. Lbs.	55,772	3,400	836.38
Vegetables, Other. $		39,477	9,869.25
Total 6 months..		$70,791	$15,385.98
Grand total 12 months.		$117,908	$28,967,07

TORONTO.

JULY TO DECEMBER, 1903, INCLUSIVE.

Articles.	Quantity.	Value.	Duty.
Melons ..... No.	97,522	$5,627	$1,409 75
Potatoes .....Bush.	1,414	1,292	212.10
Potatoes. Sweet . "	5,178	4,037	517.80
Tomatoes, Fresh. "	8 726	10,224	2,777.60
Vegetables, Can'd Lbs.	148,747	7,047	2,231.20
Vegetables, Other $		10,432	2,608.00
Total 6 months.		$38,659	$9,753.45

JANUARY TO JUNE, 1904, INCLUSIVE.

Articles.	Quantity.	Value.	Duty.
Melons ..... No.	7,662	$ 775	$ 193.75
Potatoes .....Bush.	3,279	3,755	491.85
Potatoes, Sweet.. "	337	479	33.70
Tomatres, Fresh. "	7,191	17.661	3,204.30
Vegetables, Can'd Lbs.	55,231	4,156	829.07
Vegetables, Other $		28,160	7,040.00
Total 6 months.		$54,986	$11,792.67
Grand total 12 months		$93,645	$21,546.12

The Vicar Pear

L. WOOLVERTON, SUPT. ONTARIO FRUIT STATIONS, GRIMSBY, ONT.

A GENTLEMAN in the County of Waterloo sends a sample of a pear for identification. The pear, he says, matured in December, and when he wrote early in February, was still in good condition. The tree is a heavy bearer. For an ordinary sized tree, one barrel of fruit would be a fair crop, but in 1903 it bore three barrels of pears, of which 90 per cent were marketable, and in 1904 one barrel of marketable fruit. The Toronto men believe it to be Buerre d'Anjou, but it does not quite correspond with the description. "I hope," he adds, "that you can give me the correct name of the pear."

The pear is a fair sample of the Vicar of Winkfield, which was described and illustrated in my report to the Minister of Agriculture for the year 1901, page 22. It is an old French pear, introduced into cultivation about the year 1760, and now distributed in France under different names. It was introduced into England by the Vicar of Winkfield, hence its English name. I have grown the pear over 30 years in my experimental orchard near Grimsby, and have come to the conclusion that it should not be highly commended. The tree is fairly productive, but inclined to suffer from blight; while the fruit, though large in size and an excellent keeper and shipper, carrying as well as an apple, lacks color to make it a good seller, and has not good enough quality to commend it for the home garden. Its season is December to February.

The British Columbia Fruit Growers' Association is asking the local legislature to increase its annual grant. It also asks the Department of Agriculture to arrange for a national convention of fruit growers next autumn.

New York Fruit Growers

W. H. BUNTING, ST. CATHARINES, ONT.

THE annual meeting of the Western New York Horticultural Society, and their 50th anniversary, was held in Rochester, N. Y., January 25 and 26. Notwithstanding severe weather, there was a large attendance from all over New York State, and a number of representatives from neighboring states.

Addresses were delivered by Prof. Bailey, on the history and outlook of the society; by Prof. Craig, on the apple orchard, supplemented by a series of very interesting stereoptican views; by Prof. Atwood, on the threatened invasion of the gypsey moth, and by Prof. Jordan, Prof. Beach and others. The discussions on the various subjects were animated and showed the fruit growers across the line are alive to the importance of their calling and the necessity for keeping abreast with the investigations of the experimenters and practical men of the day.

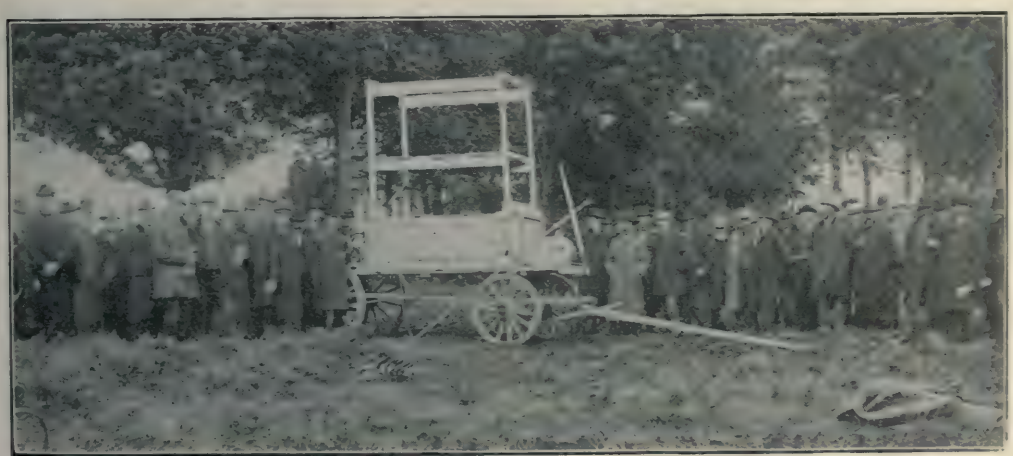
The display of fruit was exceptionally fine, and the exhibition of spraying machines and orchard appliances was of large proportions and great interest. Mr. Barry and Mr. Hall were unanimously re-elected to the offices of president and secretary-treasurer.

Another Testimony For Spraying

A. HEAZLITT, ADOLPHUSTOWN, ONT.

FOR spraying I use a pump purchased about 12 years ago for which I paid $16. This included barrel and blocks and double hose. It takes three men to run it; one to each hose, one to drive the horse and do the pumping. I spray for the codling moth, soon after the blossom falls, when the little apple is pointing upwards, and again in three or four weeks. I use four ounces paris green and one quart of new lime to 40 gallons of water. We can spray about 45 trees in an hour. We have no San Jose scale. A neighbor who has tried all kinds of sprayers agrees with me as to the value of my pump. I fully believe in the value of spraying.

Prices were very low last year, but had I not sprayed I would not have been able to dispose of my apples at any price. Spraying is O. K.—(Fred. Heeney, Ingersoll.



Fruit Growers Examining the Results of Cooperative Spraying

In this issue Mr. Alex. McNeill, Chier of the Fruit Division, describes the results of the cooperative spraying, conducted under the direction of the goverement, in the Ingersoll district The illustration shows fruit growers inspecting the sprayed and unsprayed orchards ast fall. (Photograph taken especially for The Canadian Horticulturist.)

THE ONTARIO FRUIT EXPERIMENT STATIONS*

REPORT OF THE INSPECTOR, PROF. H. L. HUTT, GUELPH, ONT.

Fruit trees in the St. Lawrence Valley suffered severely last winter. Mr. Jones, of Maitland, the experimenter, has made careful note of the relative hardiness of the different varieties. He has a good general collection of the hardiest varieties of fruit, made up of 74 varieties of apples, 40 of pears, 51 of plums, and 11 of cherries. Only a few of the hardiest varieties of pears and plums survived the winter, and none of them, with the exception of the American plums, fruited satisfactorily.

Many varieties of apples supposed to be quite hardy were not sufficiently so to stand the severity of last winter. A young orchard of 150 Ontario apple trees, three years planted, was entirely destroyed. Blenheim, Ben Davis and Stark trees also were killed or more or less severely injured. Even large trees of Fameuse and Scarlet Pippin, which had been bearing regularly for the past 20 years, were killed outright. In nearly all cases, however, these were trees which had weakened their vitality by over-bearing the previous year. Trees of the same variety along side, which bore no crop in 1903 were quite healthy and bore heavily this year. In this connection a valuable lesson may be learned as to the importance of keeping trees at all times in good health if possible, and not allowing them to lose vigor through over-bearing, attacks of insects, fungii, or other causes.

Mr. Jones is a strong believer in the importance of hardy stock for top working the less hardy varieties upon. He has set out about four acres of McMahon White apple trees, and has top-grafted them with scions selected from his most productive and best colored Fameuse trees. In this way he will soon have an orchard of hardy productive trees bearing fine, high colored fruit as the result of careful selection of scions.

For a commercial orchard Mr. Jones has found the Fameuse, McIntosh and Scarlet Pippin the most profitable varieties for his section, but for a general home collection, covering the season from early to late he recommends the following:

APPLES: Yellow Transparent, Astrachan, Duchess, Alexander, Fameuse, McIntosh, Scarlet Pippin, Wealthy, Milwaukee, Scott's Winter, and Golden Russet.

Pears and plums cannot be relied upon for a profit in that section, although a few may be grown for home use. The following are the varieties which Mr. Jones recommends as a result of his testing so far:

PEARS: Flemish Beauty, Clapp's Favorite, and Ritson.

PLUMS: Whittaker, Wolf, Stoddard, Red June, Mana, Ogon, and Glass Seedling.

CHERRIES: Early Richmond, Montmorency, Orel, and English Morello.

THE GRIMSBY STATION.

Mr. L. Woolverton, of Grimsby, the experimenter at this station, has 100 acres closely planted with fruit. His collection of varieties is one of the largest and most representative to be found in Ontario. It is made up of 50 varieties of apples, 60 of pears, 60 of plums, 100 of peaches, 100 of cherries, 5 of quinces, 12 of apricots, 104 of grapes, 15 of currants, 40 of gooseberries, and 50 of strawberries.

The following are the varieties he recommends for planting in his section:

SWEET CHERRIES: Governor Wood, Napoleon Knight, Tartarian, Elkhorn, and on clay soil, Windsor.

SOUR CHERRIES: Montmorency and English Morello.

Mr. Woolverton has about 200 Windsor cherry trees six or seven years old which have made good growth, but borne very little fruit, while trees of the same variety on heavy soil at Mr. Orr's a few miles farther west have fruited heavily. Last winter killed the fruit buds on most of the

*The first part of this report was published in the February issue.

sweet varieties in Mr. Woolverton's collection, and the crop as a consequence last season was light. The sour varieties came through the winter uninjured and bore heavily.

THE SIMCOE STATION.

In this section of Ontario hardiness is necessarily a first consideration in the selection of varieties of fruits for planting. Mr. G. C. Caston, of Craighurst, the experimenter, has an excellent general collection of apples, pears, plums, cherries, and the small fruits, which he has had under careful test for a number of years. He is thus in a position to give valuable information on any of the fruits suitable for that district. He strongly advocates the plan of top working the best varieties of apples, such as Spy and King, upon hardier stock, such as the Talman Sweet. The advantage gained by this practice was quite evident this year after the severe test to which the trees were put last winter. The varieties of apples which he recommends for that section are: Duchess, Alexander, Peerless, Snow, Blenheim, Greening, Fallawater, Ontario, Spy, Gano, and Stark. The Baldwin, Greening, King, Spy and Ontario, he says, should always be top grafted on hardy stock in that district.

Out of the 25 varieties of cherries tested for a number of years he recommends Ostheim, Orel No. 24, Russian No. 207, Bessarabian, Montmorency and Dyehouse. Mr. Caston has been very successful in the cultivation of raspberries and blackberries, which not only bear well but bring profitable prices in the local markets. The Cuthbert has been his best red raspberry, while Agawam and Eldorado have been his most profitable varieties of the blackberry.

THE BAY OF QUINTE SECTION.

This section is in the centre of one of the best apple growing sections of Ontario, and nowhere else in the country do I know of a more successful apple grower than our experimenter, Mr. W. H. Dempsey, of Trenton. His annual crop averages about 2,000 barrels. Last year it was somewhat over that amount.

Mr. Dempsey has in his orchard 300 varieties of apples, 40 of pears, 30 of plums, 6 of cherries, 3 of peaches, and 2 of quinces.

The following are the varieties he recommends for planting in his section:

APPLES: Thirteen of the leading commercial varieties in order of their ripening: Duchess, Gravenstein, Alexander, Trenton, Wealthy, Fameuse, McIntosh, Blenheim, King, Greening, Ontario, Baldwin, Seek, Spy, Stark, and Ben Davis. Thirteen of the choicest varieties for domestic purposes in their order of ripening: Primate, Duchess, Gravenstein, Trenton, Wealthy, Fameuse, McIntosh, Pomme Grise, King, Greening, Ontario, Seek, Spy, Swayzie, Pomme Grise, Jonathan, and Talman. A few of the most promising new varieties: Star, Fanny, Garden Gem, Parlines Beauty, Coe's River Beauty, Winter Banana, Boiken, Windsor Chief, and Rome Beauty.

PEARS: Gifford, Tyson, Clapp's Favorite, Bartlett, Boussock, B. Hardy, White Doyenne, Dempsey, Bosc, Clairgeau, Goodale, Lawrence, Josephine de Malines.

PLUMS: Saunders, Burbank, Abundance, Imperial Gage, Lombard, Shipper's Pride, Chabot, Niagara, Damson, Reine Claude.

CHERRIES: Early Richmond, Montmorency.

PEACHES: Fitzgerald stood last winter uninjured.

QUINCE: Orange.

IN NORTHERN ONTARIO.

Last year was a severe test for the hardiness of trees in Northern Ontario, and some valuable lessons have been learned at the Algoma Station, conducted by Charles Young, of Richard's Landing, who is an enthusiastic fruit grower and a careful observer.

I cannot give a better idea of some of Mr. Young's work than by quoting a few of his answers to questions I put to him last summer. In answer to the question as to what kinds of fruits he is growing he says: "I am trying to grow a little of almost everything in the way of fruit except peaches, without making a specialty of any one thing. The work so far has been purely experimental. If the question had been what made the most money I would have answered without any hesitation strawberries, and after that fall apples. I have in round numbers 35 of apples, 9 of pears, 12 of cherries, 11 of plums, 8 of strawberries, 10 of gooseberries, 7 of currants, 5 of raspberries, 8 of black raspberries, and 8 of grapes."

In answer to the question, "What varieties of apples would you recommend for planting in your section," he said: "I will make the list very short. Fall—Astrachan, Duchess, Charlemoff, Yellow Transparent, Gideon. Early winter—Longfield and Wealthy. Scott's Winter is the best late winter, but it by no means fills the bill. A late keeping apple of good size and quality and as hardy as some of our fall apples we have not got so far. I thought we had it in the Ontario, but last winter was too much for it, although I think if the trees had been a few years older it would have come out all right. As it is now, I am disappointed in this apple."

Replying to a question as to how trees wintered in his section he said: "They apparently came through the winter fairly well, but the spring or early summer killed 20 per cent. of them. The summer and fall of 1903 were extremely wet here, which induced a long sappy growth which was not fully matured when winter set in. We had no fall to speak of between summer and winter, then followed the excessive cold of winter, 48 degrees below zero on the main land and 46 below at this station, and for days in succession 30 below zero. This, no doubt, weakened the vitality of the trees, but with the exception of the tips of last season's growth I could see nothing the matter when they got their annual pruning between April 12 and 20.

"The first week in May was excessively hot in the day with hard frost at night, which is the principal cause of failure in fruit growing in the north. The trees leafed out all right with the exception of a few cherries, but just as soon as the sap in the top of the tree was exhausted the tree began to die. There was no root killing, although the snow at no time was very deep. Most of the trees were killed to the snow line and are making new growth a foot above the ground. They may in a few years make better trees than they were originally. Six feet of clear trunk is not the thing for trees in this section, three feet is quite high enough. If I had taken my usual precaution and protected the trunks of the trees from the sun I have no doubt most of them would have come out all right, but this I omitted in the fall."

"As to what varieties have suffered most: This has puzzled me, for varieties that had been considered hardy, for instance, Talman, Golden Russet and Ben Davis, are nearly all killed. I have lost no trees planted six years ago except two Wagners. Among pears, Keiffers, which bore some fruit last year, were killed to within a foot of the ground. Anjou, which I had not considered extra hardy, was uninjured and came out better than even Flemish Beauty. A few sweet cherries I had are dead, others are gradually dying."

Although in my 81st year, I am spending a good deal of my time tramping in the snow and cold soliciting renewals and new subscriptions for The Canadian Horticulturist.—(Jos. Barker, Secretary Kincardine Horticultural Society.

I find something to help me in every issue of The Horticulturist, though the reason I began taking it was for the information it gave about growing flowers. The magazine is getting better all the time.—(Mrs. Geo. Mutton, Penrym.

SPRAYING AGAINST THE BLACK ROT

W. H. BUNTING, ST. CATHARINES.

I HAVE noted with considerable interest the timely articles in The Horticulturist on black rot of the grape, more especially those from Mr. W. T. Macoun, of the Central Experimental Farm, and Prof. Lochhead, of the Ontario Agricultural College, both of whom have been taking a lively interest in the work of the fruit growers of Ontario. As my vineyards have been incidentally mentioned in these articles, I have thought that I might add a word or two emphasizing the conclusions arrived at.

Spraying on the Farm of Alex. Heazlitt, Adolphustown, Lennox County, Ont.

The grape industry, which has reached large proportions, and become a most important interest, is threatened with a serious danger unless prompt measures are taken to check the inroads of this fungus disease. I have had evidence of the presence of the rot for several years amongst the Rogers varieties on sandy soil, and have been spraying to some extent, but with indifferent success, because the work was done in a spasmodic way, and usually not taken up until after the damage to the fruit became more or less evident. It was not until 1901 that symptoms of this disease were seen on the Niagara grape, but during that year it suddenly appeared when the fruit had attained nearly full size but had not commenced to ripen. An application of Bordeaux mixture seemed to check it. There also appeared that year what has become commonly known as petrified grapes. The berry, instead of ripening in the ordinary way, became solid and opaque, assumed a dull grey or greenish white appearance, and finally dropped to the ground.

In 1903, owing to peculiarly favorable atmospheric conditions, black rot spread so rapidly, not only over the Niagara grapes, but also affected nearly all other varieties and was in evidence in so many vineyards it became apparent that a vigorous campaign must be commenced. Conflicting reports were received of failure or success in combatting the disease. In some sections the growers pulled out their vineyards and turned their attention to other crops. Others, by persistent effort, succeeded in controlling the disease and reaped fair crops. I resolved on making a determined effort to fight the rot during 1904.

The vineyard most seriously affected was sprayed seven times; four with the Bordeaux mixture (4-4-40 formula), twice with the soda Bordeaux, using sufficient caustic soda to neutralize the acidity of the copper solution, and once with a dust spray composed of about 30 pounds of lime, 15

pounds of sulphuric acid and two pounds of sulphate of copper, in a finely powdered condition, well mixed and applied with a Jumbo dust sprayer. Although 1904 was favorable for the spread of fungus there was comparatively little rot in the vineyard of about five acres, and no petrified fruit, and I succeeded in harvesting one of the most satisfactory crops of grapes this vineyard has produced for many years. In 1903 nearly 75 per cent. of the crops had been destroyed by rot.

In other vineyards where less spraying was done there was more or less evidence of rot even where it had not previously appeared, while in many surrounding vineyards, where no spraying was done, the crop was absolutely worthless. I am satisfied that frequent and systematic spraying with the Bordeaux mixture will result in freedom from rot and disease, in producing bright, healthy foliage and in the proper maturing of a fine crop of fruit under ordinary conditions.

STRAWBERRY CULTURE

E. B. STEVENSON, PONSONBY, ONT.

THE past season has emphasized the superiority of the narrow row system of strawberry cultivation, with soil well prepared. The question is often asked, "What is the best soil for strawberries?" They may be grown on any land that will produce a good crop of corn, potatoes, or turnips; ground that has been well manured for roots the year previous is perhaps the best.

There is nothing more important in successful strawberry growing than a careful preparation of the soil. There is no fruit that is more unsatisfactory and more unprofitable when neglected, and none that will more readily respond to good care. Only those who have had experience can be made to believe what can be taken off an acre of strawberries. The up-to-date grower, who gives strawberries suitable ground and proper cultivation, will clear, one year with another, $225 to $250 per acre.

Strawberries should not be planted on newly plowed sod land, nor on ground on which the water stands after rain or through the winter. On sod land a great many white grubs are often found, which will make havoc amongst newly set strawberry plants. I have seen the white grub clean off the plants from a two-acre field that had been planted on sod land.

The best results will be obtained from rows three or three and one-half feet apart, plants the same distance in the row, cultivated both ways for a time, then, when plants are running well, cultivate one way. Keep the rows of plants narrow—about 18 inches—leaving a good path for the pickers. In the fall, after growth has stopped, give a dressing of unleached ashes and a slight covering of long strawy manure, or pea straw. In the spring this should be raked into the paths, and will act as a mulch and keep the berries clean. If the ground has been kept well cultivated and clear of weeds the previous summer it will need very little in the spring.

Last season was unfavorable. Owing to the severity of the winter the plants suffered very much, some plantations losing one-third. The plants made a good growth and went into winter quarters in good condition, and where they had a good covering of snow or straw came out all right. Where not covered the very severe freezing of February did the damage, but wherever they were well mulched the plants came through the winter in good condition. The experience of the past season emphasizes

the great importance of a good heavy mulch, especially where the plants are thin in the row. This prevents the great damage that results from heavy freezing, or alternated freezing and thawing. The season vas later than usual and prices ruled higher on account of a light crop.

CONCERNING VARIETIES.

As to the best varieties each grower will have, in a large measure, to decide for himself which are best suited for his soil and style of cultivation. In some places Michels is the best early, in others it gives a very good return. The first to ripen last season were Excelsior, Michels, Van Deman, August Luther, Camelon, Success, Early Market, but not very much ahead of the bulk of the mid-season varieties. Gandy, Nettie, Hunn, Robbie, Buster and Irene were among the last picked.

Among the good varieties Monitor did well. It is an early variety. There were only one or two pickings of the earliest varieties before the mediums, viz., Clyde, Monitor and Splendid, were ready; then Bubach, Tennessee Prolific, Williams, followed by Glen Mary, Sample Atoma, Gandy, Joe, Nettie.

Of the new varieties, fruiting for the first time with me, Success, President, Fairfield and Ben Davis did the best. Success is early and makes small plants, but is a good runner and the berries medium in size. I have a new strawberry named The Cardinal. It is claimed to be the long looked for "perfect" berry. The plants are clean and bright, vigorous and strong, large and healthy, no trace of rust on any of them. When it fruits next season, if the berry proves to be as good as the plant, it may turn out to be what its originator claims, viz., perfect. I hope it may have a favorable season in which to make its first appearance in Canada.

Berry Bushes in the Orchard

MR. A. PETTIT, of Grimsby, was one of the fortunate fruit growers who did not lose many peach trees by the severe weather of the winter of 1904. He attributes this largely to the fact that he has berry bushes planted in alternate rows in his peach orchard. The bushes, he claims, help to hold the snow and break the sweep of the wind. "Where the bushes were planted," said Mr. Pettit to a representative of The Horticulturist, "I only lost three or four trees. In another orchard where there were no bushes I lost about 200 trees. The location of the two orchards was practically the same. I have been unable to account for it in any other way."

"How would mulching with straw, or the use of a cover crop, affect the trees," was asked Mr. Pettit. "Anything that will hold snow and protect the roots," he replied, "would be of value, but I doubt if it would be practicable in a large orchard."

Dry Sulphur for the Rot

"LAST year was my first experience with the black rot in grapes," said Mr. R. H. Lewis, of Hamilton, to The Horticulturist recently. "I never had anything serious the matter with my grapes before. My impression is that growers will have to spray thoroughly and at the proper time if they are to prevent the rot seriously injuring their crops. I used dry sulphur last season, which I applied twice, but with no result. This may have been due to the fact that I did not apply it soon enough, although I do not believe sulphur is the remedy.

"The Bordeaux mixture, I think, is the best to use. This year I intend to apply a copper solution before the buds start and to follow it with two or three applications of the Bordeaux mixture. One application put on thoroughly is worth half a dozen put on poorly. I am using a power sprayer and have obtained excellent results."

DISEASES OF THE GRAPE *

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

THE brown rot, downy mildew, gray rot, is the rot which up to recent years proved most injurious in Ontario. The general appearance of this rot as it affects the fruit has already been noticed. Like the black rot, it affects leaves, stems, and fruit. The disease causes slightly depressed patches on the shoots, somewhat like anthracnose, but they are not so deep. The stems, however, are not usually badly affected, but it is the leaves and fruit which suffer most. Unlike the black rot, in the case of brown rot once an infection takes place the disease spreads through the tissues of the vine.

When the leaves are affected they turn pale where the disease has been at work, and about this time the under part of the affected leaf becomes downy, indicating the presence of spores and presenting the downy mildew stage of the disease. After this the affected parts of the leaves turn brown. The diseased condition of the fruit is indicated by a brown patch which gradually spreads over the whole grape, which gradually withers. The absence of black pustules readily distinguish this at this stage from the black rot. Sometimes, after the fruit has withered, it becomes covered with a white powdery substance indicating the spores, but these do not always develop, much depending on healthy conditions. Spray with Bordeaux mixture just before blossoming, after fruit has set, and 10 to 14 days later.

POWDERY MILDEW *(Uncinula spiralis).*

This disease does not penetrate into the tissue of the plant as the black and brown rot, but grows upon the surface, making it much easier to treat. Unlike these diseases also, it spreads more rapidly in rather dry weather. The mildew grows on the young shoots and under surface of the leaves and on the fruit, giving them a grayish, powdery appearance easily recognized as being caused by the powdery mildew. This disease feeds on the plant by sending small suckers into the plant cells from which it gets food. Spores are produced early in the season and these being scattered about soon infect other leaves or vines and spread the disease.

A second crop of spores are produced later in the summer and these carry the disease over the winter. These are enclosed in a hard, roundish case which becomes black during the latter part of the season. This is a very easy disease to treat and yields readily to fungicides. Dry sulphur and sulphur and water have been found effective, but as this disease often accompanies other diseases of the grape the sprayings with Bordeaux mixture recommended for black and brown rot are preferable and will effectually check it.

A disease noticed in the vineyards at Winona, Ont., is undoubtedly this species. It causes a withering of the leaves somewhat like the brown rot, but the fruit is not affected nor has the under surface of the leaf the downy appearance of the brown rot. The leaves on the vines at Winona had the burnt appearance which is peculiar to many

The patches on the leaves indicating the disease are large and irregular in outline. The patches become quite dry and will break from the leaf very readily. The spores are borne on the under surface of the leaf on slender filaments and are produced in large numbers during damp weather. This disease lives over the winter in the fallen leaves. It has not received much attention, but it weakens the vines and prevents the full development of the fruit. Spraying the vines, as for black rot, should prove quite effectual.

* Extract from an address delivered at the last annual convention of the Ontario Fruit Growers' Association. The first portion of this address will be found in the January issue.

GRAPE PRUNING

"GRAPE pruning should be done in March after the severe weather is over and before vegetation begins so that they will not bleed too profusely," said Mr. A. W. Peart, of Burlington. "I prune on the renewal spur system, a combination of the two systems in common use. I aim to get rid of the old wood, only retaining a certain amount of it to ensure having fruit.

"Grape vines will bear the third year, but it is wiser not to allow them to do so until the fourth. If you want grapes you must have a supply of young wood formed the previous year. This wood throws out shoots in the spring and on these shoots the fruit is formed."

THE HOME OF A HORTICULTURAL ENTHUSIAST

FEW people living in cities, who have a small amount of land around their homes, have any conception of the pleasure and profit they may derive from their ground with proper care and the necessary amount of enthusiasm. Any such who could visit the home of Mr. R. B. Whyte, of Ottawa, during the summer months, would be amazed and encouraged by what they saw. This pleasure fell to the lot of an editorial representative of The Horticulturist last summer who wishes many more of Canada's amateur florists could have the same experience.

How the Walks in Mr. Whyte's Garden Are Laid Out

This cut shows how well adapted the boulder border is for rounding corners and for curves. The arbor is a new one and will be covered with climbing roses.

Although a very busy man, having control of the large wholesale business conducted in Ottawa under the firm name of J. G. Whyte & Sons, Mr. Whyte for many years has succeeded in making his home a bower of beauty. Not only has he surrounded himself and family with much that is beautiful in the line of flowers, but he has succeeded in producing from the little plot of land around his home many delicacies in the line of tender vegetables and fruits. All this has been accomplished by Mr. Whyte through a few hours' work each morning before he leaves for the office. "I do not," said Mr. Whyte, "do any work to speak of in my garden in the evening. I like to keep that time to look around and enjoy it."

The land at Mr. White's disposal is 200 feet by 173 feet, from which must be deducted the space occupied by his house; a most comfortable, home-like structure. Of the remaining ground there is not an inch that is not used to the best advantage. There is a lawn and tennis court, occupying 110 by 50 feet, and, with the exception of a small piece of land at the back of the house which is devoted to the raising of vegeta-

bles, the rest of the ground, about half an acre in extent, is given over to the production of flowers and fruit. As a result of years of experience Mr. Whyte has discovered the best varieties of flowers to grow to ensure continual bloom from spring until late in the autumn.

A Lovely Section in Mr. Whyte's Garden

This view is near the entrance from the street. In the foreground is a canna bed bordered with tuberous begonias. The tree is an Ostheim cherry. In the distance is the street fence covered with Virginia creeper.

The following partial list of flowers in bloom during the different months will give some conception of the beauty of this garden:

May—Narcissus, over 75 varieties; tulips, over 100 varieties.

June—Paeonies, 30 kinds; lilies, 30 kinds, lasting all season; German iris, 40 kinds.

July—Spiraeas, 15 varieties; Japanese iris, 35 varieties.

August and September—Gladioli, between 4,000 and 5,000 bulbs; phlox, 70 varieties, and over 70 kinds of herbaceous perennials.

In addition to the flowers Mr. Whyte finds time to grow 25 kinds of grapes, 15 of apples, 10 of currants, 32 of gooseberries, and the Herbert raspberry.

A Hand Weeder

On entering Mr. Whyte's grounds, after the beauty of the general effect has been noted, attention is soon drawn to the neatness of the walks which reach to all parts of the garden. After trying numerous experiments Mr. Whyte believes he has discovered a walk that is free from the weak points of most garden paths. "In making

A Crescent Hoe

my paths," said Mr. Whyte, "I excavate the earth 3½ feet wide and 15 inches deep. The trench is filled in with unsifted coal ashes about 14 inches deep. This is then well rolled with a garden roller, then a layer of sifted ashes, rolled again and covered with about an inch of sandy earth, which, when rolled hard, makes a very pleasant path to walk upon, dry, free from grittiness, and easily kept clean. They are lined on both sides with small rounded boulders,

which I think make a very attractive and permanent border."

A GREAT DIFFICULTY.

"The greatest difficulty many amateur flower growers have with their gardens," continued Mr. Whyte, "is to decide how to arrange their perennials and their annuals so as to ensure a constant succession of bloom. It is not good gardening to have a bare spot in the garden at any time. I have succeeded in overcoming this difficulty fairly well. Some advise using nothing but perennials, but I prefer to mix my annuals among my perennials to keep up the bloom.

One of the Paths and Arbors in Mr. Whyte's Garden.

This cut shows one of the long paths. The arbor is made of cedar poles and is covered with grape vines. In the foreground is a white phlox.

"Visitors to my garden sometimes remark, 'What a lot of work it must be to look after so many flowers.' My reply is that if it was work I would not undertake it, but as it is a pleasure I enjoy it and wish I could do more. I manage to do the bulk of the digging, but in the spring I have to secure a little help to get things ready in time for planting. During the summer the only assistance I require is to cut the grass, as that is a job I do not attempt.

"I use two hand implements, which are a great help in the care of the garden; in fact, I would not know what to do without them. In cleaning the paths and working among the plants I use a Dutch hoe. An improved form, the crescent hoe, does even better work, as it cuts both ways. With it I can cover a large surface of ground with small effort. The smaller tool is of great assistance for weeding purposes, as with it the weeds can be removed from around the plants without injuring them, and at the same time the soil is stirred up. Much more work can be done with this little implement than with the hands, and the annoyance of soiling the hands is avoided.

"Long ago I found that if I was to succeed with my garden a vigorous fight must be maintained against weeds. This fight has to be continued all season, but is the most exacting during June and July. If the weeds are kept under control during these months they do not cause much trouble during the remainder of the season.

"Every year I like to experiment with different varieties of fruits and flowers, and in this way succeed in finding many that are specially well adapted to eastern Ontario."

"How do you manage to maintain the fertility of your garden?" Mr. Whyte was asked.

"My stable yields about 25 cart loads of manure a year, and I buy about 10 more," replied Mr. Whyte. "I also use wood ashes, but find it difficult to secure enough. Every second year I obtain about 25 bushels of ashes. The greater part of the fertilizers are used for the small fruits and the

perennial border. The vegetable garden is given what is raked off the perennial border, which I have found sufficient."

During the 35 years Mr. Whyte has been interested in gardening he has become recognized as an authority in several lines of horticultural work. Largely through his efforts the Ottawa Horticultural Society was started 12 years ago and Mr. Whyte has been on the board of directors ever since. This society is recognized as one of the best in Ontario. Every month, during the summer and fall, the society holds exhibitions, at which Mr. Whyte has always been a successful exhibitor, winning a large proportion of the prizes. In the growing of poppies, gladioli and perennials he has been particularly successful. Gooseberries grown by him have been used by the Dominion government for exhibition purposes in foreign countries. In a later issue some of Mr. Whyte's methods of growing small fruits and vegetables will be described.

Any amateur horticulturist who can manage to visit Mr. Whyte's garden will receive a cordial welcome. During the 35 years he has been engaged in amateur gardening his love of the beauties of nature, as they may be found by diligent search in any city garden, has become so intensified that visitors invariably come away with fresh conceptions of the possibilities of gardening even if only on a small scale.

PLANT IMPROVEMENT BY HYBRIDIZATION*

H. H. GROFF, SIMCOE, ONT.

AT the meeting of your association at St. Louis I presented a brief address on the general advantages to be gained by breeding from tame versus wild species.

In presenting these views I took it for granted that the actual possibility of creating domestic species by hybridization had been generally admitted.

The Darwinian theory, as to the natural creation of species, is none the less true, but that such theory was intended to be accepted as an inseparable barrier to the results of scientific effort, could never have been thought of. It stated what we know to be perfectly true in nature—that the creation of wild species requires ages of time. But as I have recently expressed it, "The unfettered mind of man has bridged the ages, and in hastening evolution by hybridization, has rushed into the eons of the future and laid their treasures at our feet."

It would not be possible in a paper like this to detail the many features of this important aspect, resulting in my experience from my recognition of domestic species among my advanced creations, during years of constant and critical observation in the field, from several hundred thousand new seedlings of the gladiolus, as such detail is capable of limitless elaboration as to its actual and possible application in scientific and economic plant breeding.

I confess to a feeling of helplessness at the immensity of the field, for practical and useful results, arising from my limited application of the system of plant breeding.

The practical and general application of my system may be outlined as follows: In order to secure the benefits of existing material, make crosses between every available type, regardless of apparent objectionable characteristics. Select sires from these and use on every wild species obtainable, on special and general lines, crossing and re-crossing until desirable types are produced, then bring the selected offspring of all wild species together in intercrossing on special lines, as each wild species will prove more

* Address before American Breeders' Association, Campaign, Ill., February, 1905.

useful than another in some individual feature valued by us, for as already indicated specialization becomes imperative. The result of the foregoing will be the creation of new domestic specific types, valuable as sires for use in revitalizing crosses on existing varieties of merit, and the production of new forms and types of unexpected quality and value.

Selections of varieties and raising naturally fertilized seedlings from such selections, is only a short step towards an infinitesimal fraction of the possible satisfaction open to all plant breeders, who must be considered as advancing, more or less slowly, toward the ever rising—but never to be fully risen—sun, of scientific horticultural achievement.

Mephrolepis Piersoni, as Grown by J. Gammage & Sons.

The first step should be hybridization or cross-breeding between such selected varieties—irrespective of color or race—to the limit of variation and stability; with a contemporaneous systematic effort to develop domestic specific types from every obtainable wild species by using pollen from these advanced selections. These efforts should be conducted on many lines, with the hope of rendering the possibilities of each species controllable for the definite use planned by the operator.

For example: If the desire is to produce a white section every effort should be made to originate such colors and shades from every known wild species, without regard to their colors. When fixed types of a desirable character have been so produced these should be used as sires on selections from existing varieties as mothers for the creation of new and valuable economic types.

While the foregoing operation is progressing for the production of commercial types, crosses should be made between all of these sires on individuals prepared for use as mothers by removal of the anthers before ripening of the pollen, with the object of creating new and distinct domestic specific types to be used as the progenitors of new forms and races, as well as for the revitalization of strains possessing valuable characteristics worthy of perpetuation and elaboration. The results to be obtained from blending vital forces that have been isolated for ages in the natural production of wild species gives unbounded satisfaction, and the pleasant surprises are only limited by the activity of the worker.

In my work on the gladiolus some of the most beautiful red shades came from crosses between light types that had been revitalized by a dash of choice red blood

from new species. The effect of working through the light section added most materially to the substance of the flower. My highest satisfaction, however, is from a series of new forms with large, round, cup-shaped flowers, like the tulip or nymphea. Many of these are self colors ranging from pure white to lilac and pink, with intermediate shades of the most delicate shell pink and flesh tints.

Multiplicity of the floral pieces, as in semi-doubles, is now quite frequent. Infusions of such blood induces twinning from the seed so produced, a point that proved most interesting to Professor Bateson, of England, at the International Plant Breeders' Conference, New York, 1902. Valuable and interesting variations like the above are among the side-lines of limitless possibility yearly made apparent to the ardent worker, and selections made by me from over a half million of my new creations give promise of endless satisfaction, as well as increased opportunities for greater and more rapid progress in the future.

BANANA GROWING AT THE GUELPH COLLEGE

WM. HUNT, O. A. C.

A FINE bunch of bananas has been grown and matured in the greenhouses of the Ontario Agricultural College, Guelph. The bunch weighed 60 pounds at the time of cutting, January 11, and there were 180 bananas in all on it, or to use a commercial phrase, 10 hands of fruit, averaging 18 fingers or bananas to the hand. In point of size it compared very favorably with the large bunches seen in fruit stores, grown in the West Indies or tropical America, although it is not of the same variety usually grown there commercially.

Canadian Grown Bananas

The variety grown at the college is Musa Cavendishii, or Chinese banana, being a native of the warmer parts of China, and is better adapted for greenhouse culture than the African or tree banana. The stem of Musa Cavendishii, from the base to the crown, where the bunch of fruit makes its appearance, is seldom over five feet in height. The bunch is produced from the centre of the stem, at the base of the stalks of its immense leaves. A small portion of some of the leaves can be seen in the illustration. Some of them were over three feet in width at the broadest point and over five feet in length, giving the tree a majestic tropical appearance. The stem commenced its growth in June, 1903, from the ground, so that it has taken about 20 months to grow and mature its fruit. After fruiting the stem is cut down, as it commences to decay at once, and a young tree or sucker is al-

lowed to take its place. Usually the root produces a number of these suckers, but in greenhouse culture only one is allowed to remain, the rest being cut away when quite young.

The Chinese banana tree produces a shorter and broader bunch of fruit than the West India or tree banana. The individual fruit is also shorter and thicker than the African and West India type. As to its quality, the general verdict of the students and others of the college and Macdonald institute, among whom the bunch was distributed, was that the quality was even better and richer in flavor than those usually purchased in fruit stores. This probably arises from the fact that the bunch in question was allowed to reach its full growth before being cut from the tree, while those sold in stores have of necessity to be cut too early, and before the bunch has reached its full size, owing to the time occupied in reaching the point of consumption. The best time to cut greenhouse grown bananas is as soon as any of the fruit shows signs of coloring. Cut at this time and hung in a warm room they ripen splendidly in 10 or 12 days.

WHERE FLOWERS BLOOM IN WINTER

A FLORAL enterprise Canada has cause to be proud of is that conducted by Messrs. J. Gammage & Sons, of London, Ont. An idea of the extent of the business they control may be gained when it is stated there are over 100,000 feet of glass in their conservatories. Their grounds occupy over 13 acres, a large portion of which is used as a trial ground and nurseries. It was the pleasant experience of an editorial representative of The Canadian Horticulturist to be shown over their immense establishment during February by Mr. Wm. Gammage, who is now the head of the firm. So perfectly was the temperature in the greenhouses under control it seemed like summer although the thermometer outside stood at 10 degrees below zero and a blizzard was blowing. This impression was heightened by the lovely odor, of which the air was full, from spring flowers, such as narcissi, hyacinths, lily of the valley and tulips. This big business has been developed since 1880 by Mr. J. Gammage and his two sons, and is the result of hard work and constant, careful attention to details.

Interior View of One of the Mammoth Modern Greenhouses

The first conservatory entered had thousands of young palms about 12 inches high.

On being asked where the firm obtained such healthy stock Mr. Gammage replied that they were secured from seed grown by themselves. Their firm is the only one in Canada which grows this seed to any extent. They also grow all their own rubber plants, which are obtained by a process known as moosing. This consists in cutting the stem of the plant about half way through, inserting a small piece of wood in the cut, to prevent it growing together, wrapping about two handsfull of sphagnum moss around the wound and binding it on tightly. By keeping the moss constantly moist it causes the plant to throw out new roots. After sufficient of these are formed the new plant is placed in a pot of soil. It usually makes a much stronger growth than those started by other means.

A Section of Messrs. J. Gammage & Son's Trial Grounds

The second greenhouse visited was filled with primula obconica, such as it had never been the fortune of the representative of The Horticulturist to see before. Such trusses of bloom and healthy foliage are very rare. Over 25,000 of these are distributed every year by this firm to all parts of Canada. In another house were some of that very best of house fern, the asparagus plumosus, of which Gammage & Sons grow over 30,000 plants.

On entering the house where the stock plants of chrysanthemums are kept the first thing noticed was the fact that all the plants were in the bench, not standing under them in boxes as is usually the case. The result is that the cuttings taken from the plants are very sturdy and free from disease. The firm usually sends out over 100,000 chrysanthemum cuttings every season. Not content with having all the very best standard varieties they send to England every year for the latest new kinds. They find it quite unnecessary to go to the United States for stock. One can hardly grasp the extent of their chrysanthemum business until told that they ship over 30,000 blooms every season. They have customers from Halifax to Vancouver, to whom they are continually shipping. The extent of their trade can be understood best when looking over their orders for bulbs to arrive next fall, where such items appear as 12,500 tulips, 50,000 hyacinths, 50,000 narcissus, 60,000 lily of the valley, besides thousands of other bulbs, such as Dutch and Roman hyacinths, lilies, crocus, azaleas, etc., which they import direct from the growers.

Being asked his experience with the Bermuda lily Mr. Gammage replied that there is not nearly as much disease in Bermuda bulbs as formerly, but he considered the Japan Lily (lilium longiflorum) much the better bulbs. The lilies which are being forced for Easter are in splendid condition. At that season they usually dispose of 5,000 plants.

Seedling Pelargonium, Fred Mitchell

The rose houses were found to be in excellent condition. Three beds of American Beauties looked splendidly and will be in full bloom at Easter. They also have some splendid Brides and Bridesmaids roses. Meteor and Liberty roses not being of the best, will be discarded, and General McArthur, a new red rose shown for the first time in Canada last season, will be grown in their place.

A new range of three houses 450 feet long by 21 feet wide, is devoted almost entirely to carnations. Many of the leading varieties are grown to perfection. One bench of Enchantress was particularly good. The men working in the greenhouse were making carnation cuttings, of which over 100,000 are required to fill the orders received each season. Among the many new varieties grown is the White Lawson, which has proved to be as good as the original, Mrs. F. W. Lawson. Another specialty of Messrs. Gammage & Sons is pelargoniums. They recently purchased the entire stock of standard varieties and novelties from Mr. F. Mitchell, of Innerkip, who is now in charge of this department. Mr. Mitchell has devoted a great deal of attention to hybridizing the pelargonium. That his efforts have been crowned with success is demonstrated by the fine collection in the catalogue. Among the many good varieties is one named after Mr. Mitchell, an illustration of which appears in this issue. The color is a white ground shaded to a dark blotch at the top.

Messrs. Gammage & Sons have become well known to many horticultural societies by filling orders for goods. They supply several societies, as far east as Smith's Falls, and the fact of their selling herbaceous, as well as bedding out plants and bulbs, makes them a favorite. A special discount is allowed to societies.

The firm uses annually over one carload of pots in their greenhouses. They claim to be the largest general florists in Canada. On the trial ground and nurseries are grown large quantities of cannas, hardy phlox, peonies and hardy chrysanthemums, besides many perennials, which are becoming more popular for growing in gardens. This part of their trade is being developed. In the wholesale catalogue for 1905 are listed many of the most popular varieties of fern, including some very fine Piersoni, of which an engraving is shown.

Every part of Messrs. Gammage's establishment is constructed and worked on up-to-date methods. All the buildings and branches are connected by telephone. In the retail store most of the local orders for flowers are filled. The firm does most of the floral decorating in the vicinity.

At the recent Fruit, Flower and Honey Show in Toronto Messrs. Gammage captured many of the best prizes, including first prize and challenge cup for the best 12 varieties of chrysanthemums, first prize for the best 25 varieties, first prize for the best 12 of one variety, first prize for the best six crimson varieties, and many other prizes for chrysanthemums and roses. They took prizes on everything they exhibited.

A PROVINCIAL VEGETABLE GROWERS' ASSOCIATION

AT a well attended meeting of the vegetable growers living in the vicinity of Toronto and Hamilton, held in Toronto early in February, it was decided to form a provincial vegetable growers' association, similar to the Ontario Fruit Growers' Association. The following committee was appointed to draft a constitution and arrange for organization: Messrs. W. Carter, Dover Court Road; George Syme, jr., Carlton West; John McKay, Norway West, and R. Larkin, Todmorden, representing the Market Gardeners' Protective Association; W. C. Emery, of Aldershot; R. H. Lewis, A. E. Bates and E. J. Mahoney, of Hamilton, representing the Hamilton Tomato Growers' Association, and H. B. Cowan, of Toronto, editor of The Horticulturist.

The meeting was presided over by Mr. J. D. Evans, president of the Market Gardeners' Protective Association, who explained the objects of that association. It was organized a number of years ago to try and secure more protection for their industry. A statement of the duties imposed by Canada and the United States on garden produce had been prepared and a delegation had paid two visits to Ottawa to urge their views on the government. They had received assistance from the Montreal and Ottawa gardeners, but had not secured what they desired. Had Mr. Tarte remained in the government, he believed they would have accomplished something, as Mr. Tarte had shown himself much interested.

Mr. C. C. James, Deputy Minister of Agriculture, said the department had been trying to get in touch with the market gardeners. The department had nothing to do with the question of protection, as its work was educational. Were the vegetable growers to organize the department would be only too glad to cooperate and to assist the organization in every way possible. The market gardeners have been doing fairly well, but they might do better if still more intelligent methods were employed in their work.

The importance of the vegetable interests was shown by Mr. Cowan, of Toronto, who stated he understood some $3,000,000 is invested in the industry in and about Toronto alone. There are 30 or 40 sections in the province where vegetables are grown extensively for canning. The market gardeners should have a provincial association, just as the florists, both professional and amateur, and the fruit growers have. The recent Fruit, Flower and Honey Show was a result of this organization, and it had been most successful. The various associations receive grants from the government, and the market gardeners might were they to organize and show good reason why they should be assisted. An annual convention should be held, which would result in much benefit. Their work should be principally educational. They should have an official organ, such as the other associations had. He outlined a plan of organization.

Mr. E. J. Mahoney, of Hamilton, expressed his approval of the views set forth by Mr. Cowan. The Hamilton tomato growers have had an organization for three years, and their position is much better in consequence. He offered some suggestions as to organization and submitted the Hamilton form of petition for increased protection. The tariff on market garden produce proposed was much the same as that in force in the United States. They did not wish to prevent goods coming in which they did not grow, but they wished to avoid injurious competition. They did not want ad valorem but specific duties.

Mr. R. H. Lewis, Hamilton, advocated a committee to work out the details of organization and report at a subsequent meeting.

Mr. J. W. Rush, Mimico, related how their little local association had accomplished a good deal, instancing a reduction in the price of many of their seeds. He put in a

word for The Canadian Horticulturist and asked how many of the market gardeners were subscribers.

Mr. A. E. Bates, Hamilton, emphasized the benefit the tomato growers' association had been, and said steps had been taken to extend over the province. They had been supplying four canning factories with about 200,000 bushels. As to protection, he had at one time sent celery to Toronto, for which he got 70 to 75 cents a dozen, but had been driven from the market by the Michigan growers, who sold it at 30 cents.

After some further discussion it was unanimously agreed to form a Provincial Market Gardeners' Association, the plan of organization to be arranged by the committee already mentioned. The gathering was an enthusiastic one. It was generally felt that a provincial association will be of great value to the growers. A meeting of the special committee will be held Wednesday afternoon, March 1, after which a mass meeting of vegetable growers that will be representative of the province will probably be arranged for.

FERTILIZERS FOR EARLY TOMATOES

W. W. HILLBORN, FRUIT EXPERIMENT STATION, LEAMINGTON, ONT.

I HAVE every confidence in chemicals as fertilizers for early tomatoes. We are, however, paying too much for the ready mixed article, which we cannot always get in the right proportions. I have had the best results from buying the chemicals separate, but have experienced considerable difficulty in pulverizing nitrate of soda, muriate of potash, etc. I am building a cheap machine to grind such material, and will run it with a two-horse power gasoline engine that I bought for pumping water. I shall use a large quantity of nitrate of soda, muriate of potash, sulphate of potash, kainit, dissolved bone, and acid phosphate, and shall make a number of experiments and hope to get some information that I have not been able to find in literature on the subject. One of the important problems to be solved is the right mixture to produce the best crop of early tomatoes. Nearly all the ready mixed fertilizers contain too much nitrogen and not enough phosphoric acid and potash. On this account the first blossoms do not set but drop of.

Mr. J. L. Hilbo n's Cucumber House, 20 x 206 Feet, Essex County.

Weather conditions must be taken into account. With a cold, wet spring as much nitrogen cannot safely be used as when the conditions are more favorable. I want to get at the right mixture for an unfavorable spring, for we are never sure of the weather until after the fertilizer is in the soil.

Plow barnyard manure under to form humus as it needs darkness and moisture.

Early Cucumbers in a Cold Frame

W. T. MACOUN, HORTICULTURIST, C. E. F.,
OTTAWA, ONT.

I have tried for several years with varying success to raise early cucumbers in a cold frame. The frame is permanent with about a foot of earth dug out except six inches near the sides. About two feet of leaves are tramped down each fall and covered with six or eight inches of earth, which is taken out annually. Lettuce is planted on this as early as possible, and in a five-sash frame five or six cucumber plants are set the beginning of June, often in full flower, from six-inch pots. White Spine seed is used and some manure is put in when they are planted, but I can never get fruit before the middle or end of July, when I always secure a good crop. I have tried planting earlier without lettuce and 20 or 30 plants; also pinching vines and artificial pollination of bloom, but have seldom succeeded, and the early planted ones were no more forwarded than the later. I tried keeping the sash on at night and putting it down for the day, but the results seem always about the same as the early blooms always drop. Could you kindly give me an idea as to the likely cause. I tried taking off the sash altogether the middle of June, as well as watering under the leaves so as not to wash the bloom. English cucumbers are ready the first, but are not generally liked.—(A. J. Collins, Listowel, Ont.

Interior of Cucumber House After Plants Are Set

During March the vegetable growers in Essex county who force vegetables for the early markets start most of their work. One of the pioneers of this industry is Mr. J. L. Hilborn, of Leamington, in whose cucumber house the above view was secured.

There are several probable causes of the cucumbers not setting well. In the first place it would seem as if the soil at time of planting cannot be in very good condition for the cucumber plants. There would be very little heat in the leaves in the frame by the time the cucumber plants were set out and after having watered for several weeks beforehand for lettuce, the soil is probably cold and possibly sour, conditions which are very unfavorable to cucumber plants. The plants are too far advanced when they are transplanted to the frame and thus receive a severe check.

Most of the first blooms are male flowers and hence would not be expected to set. The flowers of cucumbers are very sensitive to cold and if chilled by removing the sash in a cool time, or if chilled with cold water, would be likely to fall without setting fruit.

I should advise using about a foot of good fresh manure instead of the leaves for the lettuce, and sowing the cucumber seed among the lettuce. After the cucumber plants are in bloom, and when the days are warm remove the sash in the day time, as pollination will be better if this is done. Avoid using cold water.

In growing cucumbers for pickles it will generally pay to apply 50 or 60 tons of stable manure to the acre, as the yield varies from 150 to 500 bushels an acre.

Fertilizers for Tomatoes

JAMES TITTERINGTON, ST. CATHARINES, ONT.

FOR early tomatoes I use a fertilizer manufactured in the United States. The guaranteed analysis of it is four per cent. nitrogen, eight per cent. phosphoric acid, and seven per cent. potash. I have had very satisfactory results from its use.

I generally broadcast about 500 pounds to the acre, harrowing it well in. I also use about the same quantity when setting out the plants, putting a small handful in each hill, mixing it well with the soil. The plants are set four and a half feet apart each way. I try to get part of the plants out as early in May as the weather will permit, using round peach baskets to cover them on cool nights. I have always found that from the first set plants, even if small, we get our first ripe tomatoes.

Tomatoes and Cauliflower

"I SOW my tomato seed in hot beds about the last of March," said Mr. James Conboy, of North Dovercourt to a representative of The Horticulturist who visited his place. "As soon as all danger of frost is past I set the plants out in rows four feet apart and 30 inches apart in the row. To set them any farther apart is only wasting land. To grow tomatoes successfully it is not wise to make the land too rich, as they run too much to vines, and the fruit is scanty. The chief point to watch is continual cultivation to conserve moisture and keep down all weeds. The best commercial varieties here are Dominion Day and Atlantic Prize.

GROWING CAULIFLOWER.

"I grow good cauliflower because I have good soil and do plenty of cultivating. About May 24 I scatter the seed in rows about eight inches apart. Between July 1 and 12, on a cloudy day, I set the plants out in rows three feet apart and 20 inches apart in the row. In case I fail to get a dark day I give the young plants one good watering and then none only what Providence sends.

"Good soil, with a coat of ordinary stable manure, ensures a good crop of cauliflowers the first season, and the land is left in ideal condition for an onion crop the following spring. From my experience I conclude that a dark loam is most suitable for cauliflowers. The best paying varieties here are Gilt Edge and Early Selected Dwarf Erfult."

Tar in the Greenhouse

"THE lettuce in my brother's greenhouse," remarked Mr. G. Sime, of Carlton West, recently, "has died, and he thinks it is due to the fact that he put tar both on the inside and the outside of the boards used in the walls of the greenhouse. After the lettuce was planted it grew all right but died within two or three days. As there was nothing else unusual about the greenhouse it seemed probable that the odor from the tar was the cause of the trouble."

"That was it," broke in Mr. R. Larkin, of 599 Eastern avenue, who happened to be present, "I tarred the bottoms of the trenches in my greenhouse and it killed all my green stuff. Later on I took the trenches out and I had no trouble with my plants."

"I had tar paper in my celery house," said Mr. F. F. Reeves, of Humber Bay, "and it was possible to taste the tar in the celery. There was manure on the outside of the house, and I think it prevented the odor of the tar from escaping. I do not use tar paper now, having double boarded the celery house instead."

Good seed is essential to a good garden. Cheap seed may mean a little saving at the start, but its effect will be seen in the harvest. Beware of the cheap seedsman.

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

OFFICIAL ORGAN

ONTARIO FRUIT GROWERS' ASSOCIATION.

THE POMOLOGICAL AND FRUIT GROWING SOCIETY OF THE PROVINCE OF QUEBEC.

PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATION.

H. Bronson Cowan, Editor and Business Manager.

J. J. Bell, Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of it's report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
TORONTO, CANADA

THE NEW MINISTER OF AGRICULTURE.

The appointment of Mr. Nelson Monteith, as Minister of Agriculture for Ontario, has been received with general satisfaction by those in close touch with the agricultural conditions of the province. As a graduate of the Ontario Agricultural College, a member and ex-president of the Experimental Union, and a regular attendant at the Winter Fair at Guelph, Mr. Monteith has been in close touch with many of the most important agricultural organizations in Ontario and in this respect is by far the best qualified member of the new government party for the important position to which he has been appointed.

Mr. Dryden is freely admitted to have been the most successful minister of agriculture Canada has ever seen. Some of the most complimentary remarks in regard to Mr. Dryden's fourteen years of administration have appeared recently in the Conservative press of Canada. Following such a man, every allowance will have to be made for Mr. Monteith until he has had opportunity to thoroughly acquaint himself with the many lines of work centered in his important office. Mr. Monteith is still a young man, he is thoroughly informed in regard to our agricultural conditions and is desirous of seeing his work developed along the best lines. There is, therefore, no reason apparent why he should not prove equally as successful as his predecessor in filling the important position of Minister of Agriculture of Ontario.

THE FRUIT DIVISION.

The British Columbia Fruit Growers' Association, at its annual convention in January, passed a resolution strongly opposing the proposal to place the Dominion Fruit Division under the control of the Dominion Dairy Commissioner. Seldom has the feeling of any class been as strongly, as quickly and as unanimously expressed as in this matter affecting the interests of the fruit growers of the Dominion. Provincial fruit growers' associations from Prince Edward Island to British Columbia have expressed their disapproval, in addition to which numerous small local associations, such as the Hamilton District Fruit Growers' and Gardeners' Association, have not hesitated to place themselves on record as opposing such a move. Fruit growers are proud of their industry and will not be slow to resent any action that even appears to reflect on its importance.

When it was recently announced that three new commissioners had been appointed by the Dominion Minister of Agriculture, one for live stock, one for dairying and one for seeds, fruit growers felt they had been overlooked. As the fruit division had not been united with the dairy division, fruit growers have been content to let the matter stand as it is, but within a year the Department at Ottawa may expect to receive a demand from the fruit growers of Canada that they shall be recognized by the appointment of a fruit commissioner.

FRUIT GROWERS VS. DEALERS.

At the Provincial Fruit, Flower and Honey Show last November the opinion was expressed by the fruit growers who made exhibits that at future shows it should be advertised that exhibitors would take orders for fruit. It was pointed out that if the citizens of Toronto once find they can secure high class fruit at the show many will make it a point to order their fruit each year direct from the growers. Such a privilege, it is believed, would be appreciated by the householders and would tend to greatly increase the number of exhibits at the show. Several exhibitors at the last show filled orders for fruit to be sent to all parts of Canada and the United States, and even to Mexico and Great Britain, the prices paid being very satisfactory. This feature should be developed.

The objection has been raised that if the fruit growers are allowed to take orders direct from consumers, the business of the commission dealers and even of the grocers in Toronto, is likely to be injured. This objection does not meet with much sympathy from the growers

and is not likely to appeal to the citizens of Toronto. An attempt will be made next fall to bring the growers and consumers into closer touch in the manner indicated. It is possible this movement may have far reaching results.

SEVERAL APPLICANTS.

Three applicants for the $10 prize offered by The Canadian Horticulturist to the reader purchasing goods to the greatest value from advertisers in the January issue, were received during February. The successful winner was Mr. W. H. Bunting, of St. Catharines, whose purchases of fertilizers from S. W. Marchment, of Toronto, amounted to $97.27, and of pots from the Foster Pottery Co., of Hamilton, to $21.19, a total of $118.27. The two other applicants were Messrs. Charles Mackey, of Thornbury, who bought $114 worth of nursery stock from C. W. F. Carpenter, of Winona, and Mr. C. W. Webster, of Stoney Creek, who procured 760 trees and vines worth $47 from E. D. Smith, of Winona.

Having failed to win the $10 prize Messrs. Mackey and Webster are being sent special premiums offered by The Horticulturist to every reader who purchases goods from advertisers in the magazine and who inform the advertisers that they saw their advertisement in The Horticulturist. The money offer is open to horticultural societies who purchase from our advertisers. Readers should bear in mind that when they buy from our advertisers they are entitled to a special premium free and that they are helping to further improve The Horticulturist.

The demand of tomato growers for an advance in the price paid for tomatoes by the canners is a reasonable one. The cost of labor, fertilizers and everything used by the growers in the production of their crop has increased to the point where an advance in their returns is a necessity. While the canners might be forced to ask the consumers more for their goods the difference in price by the can would be so slight it would not materially affect the demand. If the growers will take a firm stand and stick together they may depend on securing a favorable reply to their request. The growers must combine to fight a combine. Their greatest enemy will be weak-kneed growers in their own ranks who fear to hold out. The determination shown by the growers is an augury of success.

At the annual convention of the Ontario Association of Fairs and Exhibitions, held in Toronto February 14-16, the delegates voted in favor of having the Agriculture and Arts Act so amended that horticultural and agricultural societies will not be brought into conflict in regard to their government grants. As representatives of the horticultural societies of the province took the same stand at their convention last November the time has come when a change should be made. Some arrangement is needed by which horticultural societies will receive their grants in proportion to the work they are doing. It will be a most difficult matter to devise a satisfactory scheme and members of societies should give it careful attention.

Are you watching us grow? Never before has The Canadian Horticulturist carried as many or as valuable advertisements as those in this issue. Look them over; they are interesting reading. If this progress continues we will soon add several more pages of reading matter which will greatly strengthen all our departments. We intend to make The Canadian Horticulturist the best horticultural magazine published on the continent, and it is a question if it is not that already. Most of the other magazines specialize on some one line.

At last we have heard from the vegetable growers. Several attempts have been made to form a provincial assiciation but these have never gone much beyond the immediate localities of the promoters. Prospects are bright for the early formation of a strong provincial association. Such an organization will not only benefit the growers but the horticultural interests of Ontario. Let us unite in wishing the movement God-speed.

During 1905 The Canadian Horticulturist will not give premiums of plants or shrubs to subscribers. While these premiums have been appreciated by many subscribers in the past they have often proved a disappointment to the recipients. This year the money, hitherto used to send out these prizes, will be expended to improve the magazine and all our subscribers will reap the benefit. A reduced subscription price is offered for clubs of new subscribers and to societies.

Copies of the index of The Horticulturist for 1904 are ready for distribution and will be sent to any address upon receipt of a one cent stamp.

Want the Tariff Changed

The Hamilton District Gardeners' and Fruit Growers' Association has started an active agitation to secure changes in the tariff on some fruits and vegetables. Petitions are being circulated and widely signed asking that the tariff on strawberries, potatoes, tomatoes, peaches, cabbage, cucumbers, watermelons, muskmelons, beans and celery be removed, so that Canadian producers may have the benefit of the Canadian markets and not be forced to suffer as heretofore on account of foreign products coming into competition with theirs.

These petitions are being circulated in the vicinity of St. Catharines, Dunnville, London, Dundas, Bartonville, Winona, Stoney Creek and many others. Thousands of signatures have already been secured. Growers in other sections who would like to circulate petitions may secure a form by writing to James A. Stevens, Box 175, Hamilton, Ont.

SELLING CANADIAN FRUIT IN GREAT BRITAIN

The charge that certain British importers of Canadian fruit have had an understanding whereby they have been able to keep down the price is not supported either by Mr. A. W. MacKinnon, Canadian Commercial Agent at Bristol, Eng., and formerly chief of the Dominion Fruit Division, or by Mr. Grindley, Chief Inspector for the Department of Agriculture at Liverpool. Letters on this subject have been received by The Horticulturist. In his letter Mr. MacKinnon writes as follows :

"It is utterly impossible for me to endorse such charges of dishonesty on the part of brokers here, without reflecting upon the just and the unjust alike, and hearsay evidence is not sufficient to convict even the individual accused, much less an entire class of merchants. On the other hand, I have always recommended growers to unite in such a way as to enable them to conduct their own sales, either for a fixed price in Canada, or by means of auction or private sale under the supervision of one of themselves in England. The old saying is true in the fruit business as elsewhere, if you want a thing done well do it yourself.

"No one can possibly have the interests of the growers as fully at heart as a committee of themselves, and, therefore, I recommend once more the cooperative plan to all progressive growers. While I think the Ontario growers occasionally get more than their fruit is worth, owing to peculiar market conditions at the moment of sale, the surest way for them to get just values is for the British buyer to make his purchases in Canada, subject to inspection, and acceptance or refusal at the Canadian port. Growers would then take the risk of the rail journey to the seaport, after which the buyer would assume all risks."

CHARGES DISCREDITED.

In his letter, which is addressed to Mr. W. W. Moore, Chief of the Markets Division of the Department of Agriculture, who wrote to him at the request of The Horticulturist, as mentioned in the February issue, Mr. Grindlay writes as follows.

"I have your letter asking for a statement regarding the charges of fraud that have been made against the Liverpool fruit brokers. Some time ago a letter, written over the name of Mr. George A. Cochrane, of Boston, appeared in the New York Journal of Commerce, which was copied by the Canadian press. At the time the letter came under my notice I did not consider it worth attention, there being no specific charge to warrant a special investigation. The bulk of the American and Canadian apples shipped to Liverpool are sold by auction at the Commercial Sale Room by an association of fruit growers. A full description of the manner in which these fruit sales are conducted will be found in Bulletin No. 19 (new series).

"Mr. Cochrane states in his letter that the fruit auctioneers are fair, but that the dealers manage at the auctions to secure the most desirable lots, and to resell the apples at private sale at high prices.

"These sales are attended by several hundred buyers from all parts of Great Britain. The competition is so keen that there is no chance of forming rings or of a dealer or buyer having a lot of fruit knocked down at a lower price than the actual market value. The hundreds of other buyers present would not tolerate such work. The people who buy at these sales are in the wholesale trade, and many buy to reship to different parts of Great Britain and Ireland, and naturally expect a profit.

PRINT A CATALOGUE.

"Each of the fruit brokers who belong to the Fruit Brokers' Association prints a catalogue giving full details of fruit sold at each sale with prices realized. A rule of the association stipulates 'That no prices shall appear in printed catalogues, except those actually obtained, and at which invoices are issued to buyers, other than owners.' This rule, which is strictly enforced, prevents bogus sales; and the printing on the catalogues of the actual prices realized prevents sending the shippers fictitious account sales.

"Another rule specifies that all goods offered in saleroom belonging to buyers must be indexed at end of catalogue, and receivers other than auctioneers cannot bid for their own fruit. Our department has had a seat in the Commercial Sale Room for the past three seasons, and Mr. Carter, our Liverpool inspector, who has been connected for some years with the British fruit trade, is present at nearly all, if not all, the sales, and neither he nor myself have ever seen or heard of a case which would warrant such an impeachment of the honor of the members of the Liverpool Fruit Brokers' Association, as was made by Mr. Cochrane."

THE PROSPECTS FOR EARLY VEGETABLES

The Winnipeg market would take early vegetables if we could get them early, but I do not think it pays for the trouble, owing to the fact that our arrangements are all made for early vegetables, such as tomatoes, cabbages, cukes, beans, and all that kind of truck, early in the season. Prices are gradually going down in the south and are very low. The southern vegetables invariably interfere with the early products of Ontario growers. I do not, therefore, hold out any inducements for a profitable business along this line. There is no argument at all as far as the quality is concerned, as the Ontario vegetables are certainly very superior. When it comes down to vegetables, however, quality is largely thrown aside, and I do not think, as already stated, it would pay to increase the production to any great extent.—(G. M. Hunt, Manager Fruit and Produce Exchange, Winnipeg, Man.

All the early vegetables that we handle in this market would make no material difference to what would be grown in South Essex. We import a few from the American side, but we

can get them shipped in the evening and have them here the next morning at 10 o'clock, while from Essex it takes 2½ days. We consider it would not pay for Ontario growers to ship to this market.—(The Macpherson Fruit Co., Winnipeg, Man.

FRUIT TRANSPORTATION MATTERS DISCUSSED

P. W. HODGETTS, SEC'Y. ONT. FRUIT GROWERS' ASSOCIATION.

The Transportation Committee of the Ontario Fruit Growers' Association met in Toronto, Feb. 15, to outline what action should be taken in reference to transportation grievances. Mr. Jas. Hardwell, chief traffic officer of the Railway Commission, met the committee to discuss the question of ventilated and frost-proof cars. Owing to the number of systems in use and the diversity of opinion in respect to their relative value it was decided to put off any decision on this matter until another year. In the meantime extensive experiments will be conducted. With the consent of the railways, four or more cars of tender fruits will be shipped during September or October from the Niagara district to the western markets in the same train. These cars will be of the various patterns now in use, including the Wicks, Bohn, Hanrahan, New York Central Produce, and Canada Atlantic. Thermographs will be placed in each car so that accurate records of the temperature during the trip will be kept.

Later in the season the same plan will be carried out with respect to apples, a number of the various type of cars being loaded at Belleville or Trenton and shipped by the one train to the seaboard under similar conditions. This latter test will be to ascertain the desirability of the cars for protection from frost. It is estimated that 25 per cent. of the apples sent out from Ontario during the late fall and winter are frosted en route and arrive at their destination in a slack condition.

The question of rates was considered. The rate on apples to the seaboard is altogether too high. The rate on carload lots from Buffalo to New York, a distance of 425 miles, is 24 cents per barrel, while the rate from St. Catharines to Montreal, a distance of 400 miles, is about 40 cents. A sub-committee of Messrs. Bunting, McNeill and Graham, was appointed with authority to correspond with and interview the railway authorities with a view to better equipment and service, and at the same time to secure if possible a reduction in rates. Failing to get proper concessions from them the association will take active measures to press the claims of the fruit growers before the Railway Commission.

PRICE OF TOMATOES AND CORN

The market gardeners of Ontario consider they are not receiving a fair price for the produce they supply to the canners, and are taking steps to secure a higher figure. The tomato growers in and about Hamilton made a move some time ago, and at a largely attended meeting of the fruit and vegetable growers of the Niagara district, held at St. Catharines, January 28, a resolution was passed defining their position and demanding a better price. The following is the resolution as submitted to the meeting by a committee appointed to draft it: "We, the undersigned farmers and gardeners of the Niagara Peninsula, after taking into consideration the increased cost of the manure and labor required in growing and handling the crops of tomatoes and corn for the canning companies, have found that we cannot continue growing these crops at the present prices with any fair remuneration for our work. But we will agree to grow for the season of 1905 tomatoes at 30 cents per bushel and sweet corn at $8 per ton (the seed furnished free to the grower) and sign any fair form of contract agreed upon between the growers and canning companies."

The resolution was signed by a large number of the growers, and steps will be taken to secure the names of all the growers in the district.

Among those who took part in the discussion were Messrs. C. M. Honsberger, president, in the chair; Robert Thompson, W. C. McCalla, Geo. A. Robertson, A. Pay, Angus Shaw, J. A. Collins, W. H. Bunting, Murray Field and T. Nickerson. Mr. W. A. Emery, of the Hamilton association, was in attendance and gave valuable assistance.

The canners combine, which controls nearly every factory in the district, has announced that they will require nearly 800,000 bushels of tomatoes, and the factories outside the combine will require about 200,000 bushels. The increase in the price, from 25 cents to 30 cents a bushel, would mean about one-third of a cent per can to the canners, so that, as one speaker pointed out, there is nothing in the threat that the increase would compel them to close their factories.

As to corn, letters submitted by Mr. McCalla from the canners stated that they were paying $8 a ton, which they stated is more than is paid in any part of the Unitetd States. He pointed out that this is incorrect, $10 being paid in some places. The meeting took a very firm stand in favor of better prices. The increase demanded is five cents a bushel on tomatoes and one dollar a ton on corn.

We have found The Canadian Horticulturist a very good advertising medium.—(The Winona Nursery Co., Winona, Ont.

Enclosed find $1 for renewal. The Canadian Horticulturist is well worth it.—(R. Brodie, Westmount, Que.

THE HORTICULTURAL SOCIETIES ARE ACTIVE

The Smith's Falls Horticultural Society held its annual meeting in January. The former president, Dr. J. S. McCallum, was re-elected; S. E. Arnold was elected secretary-treasurer, and a strong staff of directors was appointed. Reports read showed that good work had been done.

The receipts for the year were $288.23. There was $153.95 paid out for trees, shrubs, plants and bulbs for distribution to members and for four beds of bulbs of different kinds in public park; $88.40 for The Canadian Horticulturist and pamphlet on bulb culture; $1.63 for work on beds in park, and expenses of delegate to the Toronto convention, leaving a balance of $24.25 on hand. The list of members for 1905 numbers 107.

Oakville Doing Good Work

Attendance at the annual meeting of the Oakville Horticultural Society was small. Officers elected: Pres., James Waldbrook; sec. and treas., J. Cavers. At the first meeting of the year, held late in January, a resolution was passed favoring the amendment of the Agriculture and Art Act so as to provide for government grants to horticultural societies, to be apportioned on a basis independent of the district agricultural societies, and for effective work done by each society. A distribution of plants to members was ordered.

A proposal to duplicate grants for flowering shrubs and perennials made by the boards of the town schools and of two neighboring rural schools, not exceeding an aggregate sum of $25, was discussed and left over for further consideration. Action has been taken to secure a boat service to Toronto for the benefit of the fruit growers and also in conjunction with Burlington and Clarkson's to obtain lower rates from the express companies on shipments of fruit to O'Harve and Montreal. Notice was given that the desirability of establishing a canning factory would be discussed at the next meeting.—(J. Cavers, Sec.-Treas.

Toronto Carnation Show

The annual carnation show of the Toronto Electoral District Society, the Toronto Horticultural Society, and the Toronto Gardeners' and Florists' Association was held February 16 and proved a most pleasing affair. The show was not an extensive one, as it was held rather early in the season, and several of the exhibits from the United States did not arrive on account of the railway blockade. The principal competition was for the challenge cup for the vase of best carnations. There were nine entries and the award went to the Chicago Carnation Co., of Joliet, Illinois, who scored 95 points. The prize flower was a beautiful white carnation, Lady Bountiful.

The largest exhibitor of carnations was Mr. J. H. Dunlop, of Toronto. Other exhibitors were the Chicago Carnation Co., Wm. Findlay, of Brampton, and Charles Turp, of Toronto.

FLOWERING PLANTS, SHRUBS AND PERENNIALS

SENT BY MAIL OR EXPRESS. ✲ THAT IS OUR SPECIALTY.

Don't fail to get a copy of our SPRING Catalogue.

Canadian Plants for Canadian People

OUT IN MARCH.

The Webster Floral Co., Limited, Hamilton, Can.

The Leading Canadian Florists, Nurserymen and Seedsmen

SEEDS THAT SUCCEED

"THE PIONEER SEED HOUSE OF CANADA."

ESTABLISHED 1850.

SPECIAL OFFER

No. 6. Floral. 1 pkt. each Alyssum, Balsam, Calliopsis, Eschscholtzia, Dianthus, Linum, Larkspur, Mignonette, Pansy, Petunia, Schizanthus and Zinnia–12 pkts. Retail value 60c, **for 25c, postpaid.**

No. 7. Floral. Bruce's Royal Nosegay Sweet Peas. Ten exquisite distinct varieties. Retail value 50c, **for 25c, postpaid.**

☞ Send for our handsome illustrated Catalogue of Seeds, and Everything for Farm and Garden. 88 pages. FREE.

JOHN A. BRUCE & CO., Seed Merchants

HAMILTON, - ONTARIO.

TEN DOLLARS for the person who buys Goods at the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

Mr. Findlay also showed some beautiful violets. Several lots of exceedingly well grown ferns, showing high culture, and that were much admired, were exhibited by Mr. Joseph Bennett, of Montreal.

The collection of cut flowers, which took first prize, and which were shown by Mr. Dunlop, consisted of roses, lillies of the valley, Bermuda lily, tulips, daffodils, narcissus and hyacinths. They made a fine display. The competition for a collection of flowering plants on a space not exceeding 50 square feet, arrangement to count, was between Manton Bros, of Eglinton, and J. H. Dunlop, of Toronto, who took the prizes in the order named. Messrs. Manton's collection included cyclamens, ferns, hyacinths, begonias, azaleas, lilacs, etc., while Mr. Dunlop's included ferns, azaleas, lilacs, rhodendrum, Bermuda lily, etc.

What Hespeler Has Planned

The new officers of the Hespeler Horticultural Society are: Pres., David Rife; sec., Robert Davis; treas., J. E. Warren. A board of nine directors was appointed, which was given full power to act in the interests of the society. The directors have decided to hold an exhibition in the fall and to offer prizes.

Each member will receive fruit trees, or plants and seeds this spring according to their choice. A special packet of flower seeds will be given to each member, and in the fall at the exhibition special prizes will be given for the best display of flowers grown from the seeds given out. Another distribution of plants will be made to school children, with a request that they attend to them, and at the fall show enter them for competition.—(Robert Davis, Sec.

Brantford's Year's Program

The new officers of Brantford's Horticultural society are: Pres., D. Dempster; sec., R. W. Brooks; treas., J. H. Adams. At the annual meeting it was decided to subscribe for The Horticulturist for all members. It was decided also to hereafter hold the regular meetings on the second Tuesday in each month.

It is intended to supply 1,000 packages of flower seeds to each school room in the town. The children are requested to report on the growth of these seeds. Prizes will be offered for best results secured. If finances allow, prizes will be offered for best kept lawns, boulevards., etc., but only those of amateurs.

British Columbia Fruit Growers

The following are the officers of the British Columbia Fruit Growers' Association for 1905, as elected at the recent convention of the association: President, T. W. Stirling, Kelowna; 1st vice-president, Thos. A. Brydon, Victoria; 2nd vice-president, J. C. Metcalfe, Hammond; 3rd vice-president, Jas. Johnstone, Nelson; secretary-treasurer, W. J. Brandrith, Ladner; executive committee, T. W. Stirling, J. C. Metcalfe, R. M. Palmer, H. Kipp, W. J. Brandrith.

TREES OF ALL KINDS

Our Stock of

APPLE TREES

better than ever

Thousands of **Stark, Ontario, Spy, Baldwin,** and all standard varieties ready for **Spring** delivery.

Also a full line of **Ornamental Trees, Plants** and **Vines.**

Write for beautiful NEW CATALOGUE.
Salesmen Wanted.

HELDERLEIGH NURSERIES. E. D. SMITH, - Winona, Ont.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

The Seaforth Society.—The officers of Seaforth Horticultural Society for 1905 are: Pres., Wm. Hartry; sec.-treas., Wm. Elliott. On Feb. 8 an interesting and very instructive lecture was delivered by H. W. Brown, B. A., of the Collegiate Institute staff, who took Gladiolus for his subject. It is the intention of the directors to have a lecture monthly during the season and also to encourage the planting of flowers and shrubs on the church grounds. Membership last year was 111. This year it already numbers 112, with prospects of more.—(Wm. Elliott, Sec.-Treas.

The Toronto Horticultural Society is to be congratulated on the appearance of a neat little prospectus just issued, also the program for the meetings for the entire year. One meeting each month appears on the program. That for February took the form of a carnation show, which is described elsewhere in this issue. On March 7 an "at home" is to be held in the rooms of the society. The April meeting coming on April 4 is to comprise an illustrated lecture on Pruning, by Mr. J. McP. Ross.

New officers for Simcoe Horticultural Society are: Pres., H. H. Groff; sec.-treas., J. Thos. Murphy. Various committees have been appointed for the year, and it has been decided to again make a distribution of seeds to the school children and to hold a fair at the appointed time.—(J. Thos. Murphy, Sec.

The Market Gardeners' Protective Association

The annual meeting of the Ontario Market Gardeners' Protective Association was held at Toronto early in February. The excursion committee reported a balance of $56 after paying all expenses, which amounted to $363.

The following were elected to office: Pres., J. D. Evans; vice-pres., R. Larkin; sec., F. F. Reeves; treas., John McKay; executive committee, J. W. Rush, G. Miles, Geo, Syme, Wm. Harris, C. Aymer, W. G. Carter, A. Shuter; auditors, R. Larkin, J. W. Rush. It was resolved to hold a banquet March 1, and a committee was appointed to make the necessary arrangements. A resolution was passed approving of the action of the Hamilton Tomato Growers' Association in refusing to sell tomatoes to the canners for less than 30c. a bushel.

The Carnation Growers of America held their annual convention at Chicago, January 25 and 26. The exhibit taken all round, was one of the finest ever held. The growers in attendance numbered about 125, and there would have been more had the weather conditions been more favorable. Mr. J. H. Dunlop, of Toronto, was elected first vice-president. Toronto was chosen for the convention of 1906, but gave way for Boston, which had yielded its claim in favor of Chicago this year. The convention will therefore be held at Boston in 1906 and at Toronto in 1907.

TREES! TREES! TREES!

We have a full line of Fruit and Ornamental **TREES** for spring, 1905, at lowest possible prices.

Headquarters for packing dealers' orders.

Farmers wishing to buy first-class stock absolutely **first hand** and **without paying commission to agents,** should write to us at once for a catalogue and price list.

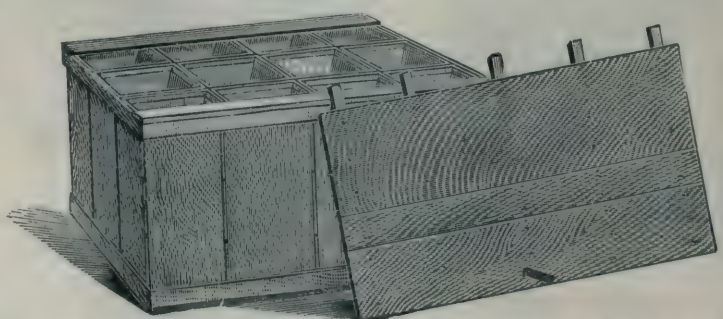
Don't wait until the last minute, as youwill be disappointed. Please order early and secure the varieties you want. Correspondence solicited.

WINONA NURSERY CO., - Winona, Ont.

BASKETS

We are Headquarters for
All Kinds of Splint Baskets

FRUIT PACKAGES A SPECIALTY



THE OAKVILLE BASKET CO., - OAKVILLE.

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue See Notice in Advertising Columns.

BLACK NAPLES CURRANTS.

"Owing to nurserymen having been in the habit of propagating currants from what are known as stools," said Mr. Joseph Tweddle, of Fruitland, Ont., one of our new advertisers, to a representative of The Horticulturist who visited his place recently, "that splendid variety Black Naples has deteriorated in bearing qualities and, unfortunately, has been largely discarded. Where it has been continuously propagated from bearing plantations it has maintained its place as the heaviest producing variety. It is the leading heavy cropper with those who have the genuine stock."

STEEL POSTS FOR GRAPE VINES.

Fruit growers are aware that wooden posts are becoming scarce, and are not sufficiently durable and rigid to satisfy their requirements. To meet this difficulty The Canadian Portable Fence Co., of Toronto, have designed a steel post especially adapted to the training and sustaining of grape vines. Their advertisement appears elsewhere in this issue.

They have put on the market an end post, modelled after their sterling standard end post for wire fencing, which is known from the Atlantic to the Pacific. This post weighs 50 pounds. Their intermediate posts consist of a single, stiff angle bar, weighing 7 to 8 pounds. These posts present the combined qualities of lightness, rigidity and permanence. Although this is the first season that the company has produced grape posts, their reputation for steel fence posts is sufficient guarantee for the new article. Fruit growers of Canada begin to perceive that they do not have to search beyond their own Dominion to find an article suited to their needs.

TO SECRETARIES OF HORTICULTURAL SOCIETIES

Secretaries of Horticultural Societies should write Wm. Rennie of Toronto for his special discounts to Societies on Vegetable and Flower Seeds and Plants, making their own selections from Rennie's Catalogue for 1905. This is a good offer and one which will no doubt be most acceptable to members

NURSERYMAN WANTED.

The Webster Floral Co., of Hamilton, is anxious to secure the services of a practical nurseryman to assist or take charge of their nursery of shrubs, etc.

Power Sprayers.—A large enquiry for the Wallace Power Sprayer is reported by F. Hamilton Co., Limited, of Hamilton. Indications point to this as being about the simplest method of obtaining power with the least trouble, there being little to get out of order.

Owing to the advancing and strong tone of the copper market blue vitriol will likely be much higher in price before the season is over.

SMALL FRUIT PLANTS
GARDEN ROOTS

Gooseberries—Josselyn, Red Jacket, Downing, Pearl and Houghton

Currants, Black—Lees' Prolific, Champion, Naples.

Currants, Red—Moore's Ruby, Childs' Ruby, Red Cherry, Victoria, Varsailles.

Currants, White—White Grape.

Raspberries—Miller, Cuthbert, Japanese Mayberry.

Black Bonis—Tuzler's Prolific.

Grape Vines—Worden, Moore's Early, Campbell's Early, Salem, De eware, Eaton, etc.

Strawberries—Clyde, Williams, Splendid, Saunders, etc.

Strawberry Raspberry—Tree Strawberry.

Garden Roots—Asparagus, Palmetto. Conovers,—Rhubarb (divided roots), Linnaeus; Victoria—Sage Roots.

WRITE FOR CATALOGUE AND PRICE

WM. FLEMING
NURSERYMAN

P. O. Box 54 OWEN SOUND, ONT.

A Handsome Calendar will be Given Free to all Readers who buy goods from Advertisers.

Grapes Currants

FOR SALE BY

JOSEPH TWEDDLE

FRUITLAND, ONT.

Grape-vine Specialist, twenty-five years experience. The largest grower in Canada.

Good stock of first-class currants. Special lines of genuine Black Naples. Stock guaranteed to be from heavy bearing plantations. : : :

WRITE ME FOR A PRICE ON YOUR ORDER

New Rose Crown Comet Aster, Pkt. 10c.

SPECIAL OFFER

—TO—

Horticultural Societies

Members can make their own selections from Rennie's Catalogue for 1905.

Secretaries will please write for Special Discounts

Catalogues supplied free to members.

WM. RENNIE, TORONTO.

PRACTICE WITH SCIENCE

ARNOTT'S COMPLETE CHEMICAL MANURES

(CONCENTRATED SOLUBLE PLANT FOOD)

SPECIAL BRANDS

—FOR—

MARKET GARDENERS, FLORISTS, VINE AND FRUIT GROWERS.

SOLD UNDER GUARANTEE OF ANALYSIS.

Contain NO Organic Matter, Refuse Materials, Sand, or Filler.
NO Harmful Mineral Acids to counteract Plant Food or check growth.

FOUR TIMES AS MUCH IMMEDIATELY AVAILABLE PLANT FOOD AS OTHER MANURES

MADE IN CANADA

UNDER THE SUPERVISION OF CHEMICAL EXPERTS BY

THE ARNOTT CHEMICAL CO.,
Agricultural & Manufacturing Chemists,
114 Victoria St., TORONTO.

BUSINESS FOUNDED IN 1853.

Books and Particulars Free on Application.

TEN DOLLARS for the person who buys Goods to the Greatest Value from Advertisers in this Issue. See Notice in Advertising Columns.

The Canadian Horticulturist

APRIL, 1905

VOLUME XXVIII NUMBER 4

THE WISHES OF FRUIT GROWERS IGNORED

IN spite of the apparently unanimous wishes of the fruit growers of Canada the Hon. Sydney Fisher, Dominion Minister of Agriculture, has placed the Fruit Division under the control of the Dairy Commissioner. This means that in matters of policy affecting the fruit industry the chief of the fruit division must consult the Dairy Commissioner and has no right to confer direct with the Minister of Agriculture. It means that the fruit industry is placed on a lower level than the dairy and live stock industries and even than the matter of the sale of seeds, as all three have been recognized by the appointment of commissioners subordinate in their work only to the Minister of Agriculture.

When it became known, some months ago, that it was proposed to place the chief of the fruit division under the control of the Dairy Commissioner protest was immediately made by fruit growers in all parts of Canada. Resolutions opposing such a move were passed by several associations including the provincial fruit growers associations of Prince Edward Island and British Columbia.

The protest from the British Columbia association was as follows:

"We, the undersigned, the members of the executive committee of the British Columbia Fruit Growers' Association, beg to protest against the reported proposal to unite the Dairy and Fruit divisions of the Department of Agriculture under one head. We feel that the fruit industry in the Dominion is becoming so important that the chief of the Fruit Division should be next to the minister and not subordinate to the chief of any other division.

(Signed) "R. M. PALMER.
"H. KIPP.
"T. W. STIRLING.
"J. C. METCALFE.
"W. J. BRANDRITH."

The Prince Edward Island growers at their annual convention in December passed the following resolution unanimously:

"Whereas it has come to the knowledge of this association, through the press that an amalgamation of the Fruit with the Dairy Division of the Department of Agriculture, Ottawa, is in contemplation; therefore it is resolved that this assemblage of the fruit growers of Prince Edward Island do respectfully express to the Honorable the Minister of Agriculture its unqualified disapproval of any such amalgamation as detrimental to the large and increasing horticultural interests of Canada, which call for extension in their central offices rather than restriction."

Other provincial associations would have taken similar action had they heard of the proposal in time. As it was, many prominent fruit growers wrote direct to Mr. Fisher. A number of papers also registered vigorous editorial protests.

For some time it was believed the proposal to unite the two divisions had been abandoned. The announcement by the Hon. Sydney Fisher that he had carried out his oiginal intention came, therefore, as a great surprise to fruit growers generally.

THE MINISTER'S REASONS.

The reasons for this action, as given by the Hon. Sydney Fisher, in the House of Commons, are as follows:

"On the passage of the Act to provide for the marking and inspection of packages containing fruit for sale, known as the "Fruit Marks Act, 1901," it became necessary to organize a staff for the administration and enforcement of the Act. The organization was placed, by the Minister of Agriculture, under the control of the Commissioner of Agriculture and Dairying, Dr. James W. Robertson, and became known as the fruit division of the branch.

"In addition to the enforcement and administration of the Fruit Marks Act the fruit division was charged with the supervision of the packing and transportation of fruit, particularly in cold storage and cool chambers, and the marketing of the same, and this brought the work of the division in close connection with the cold storage and extension of markets divisions, which, having been organized principally for facilitating the transportation and promoting the sale of dairy products, were in charge of the chief of the dairy division, Mr. J. A. Ruddick, under the Commissioner of Agriculture and Dairying for several years prior to the retirement of the latter.

"Upon the retirement of Dr. Robertson, and the abolition of the office of Commissioner of Agriculture and Dairying, Mr. Ruddick was appointed Dairy Commissioner, the work of the cold storage and the extension of markets divisions being continued under him; and owing to his close relations with the work of the fruit division, as above stated, it was deemed advisable to place the work of the latter division in his charge as well. The chief and other officers of the fruit division have been retained in office with the same duties as formerly, which they will hereafter perform under the dairy commissioner, as they formerly did under the Commissioner of Agriculture and Dairying.

"It is the intention of the Minister of Agriculture to make the work of the department, both in the fruit division and at the experimental farms, commensurate with the needs of the fruit industry in Canada."

FRUIT GROWERS NOT SATISFIED.

This explanation has not satisfied fruit growers. While it is granted that Prof. Robertson was in charge of the fruit division it is pointed out he was also in charge of the live stock, dairy, poultry, seeds and other divisions of the departmental work and that he was largely responsible for their being established. No objection is taken to Mr. Ruddick having charge of matters pertaining to the transportation of fruit in cold storage, but there is to his having charge of matters pertaining to the Fruit Marks Act, and other matters of a similar nature relating to the fruit industry.

VIEWS OF LEADING GROWERS.

That fruit growers are thoroughly aroused over this matter will be seen by the following letters which have reached The Horticulturist from all parts of Canada:

BRITISH COLUMBIA.

W. J. Brandrith, Sec.-Treas. British Columbia Fruit Growers' Association: The fruit interests of this Dominion are as deserving of recognition as any other industry. Not that we have anything against Mr. Ruddick, on the contrary we esteem him very highly, but we want a man at the head of the fruit division who has had as wide an experience in the fruit industry as Mr. Ruddick has had in the dairy industry. Surely Hon. Mr. Fisher will not go in the face of a united country and maintain an appoint-

ment that is unsatisfactory to those whose interests he is there to look after.

ONTARIO.

Murray Pettit, Winona, Ont., Director Ontario Fruit Growers' Association: The various fruit growers associations throughout the Dominion should press this matter to the very extreme. Not only fruit growers' associations, but farmers' institutes and county councils in fruit growing districts should take it up. This could be done by a circular and petition being sent to them to be adopted and forwarded to the department, followed up by a strong delegation. It is the duty of our association to take this matter up and press it.

NEW BRUNSWICK.

Henry Wilmot, Oranacto, N. B., Treasurer New Brunswick Fruit Growers' Association: I am strongly of opinion that the fruit growing industry of Canada is of sufficient importance to justify the appointment of a fruit commissioner who will be responsible to the Minister of Agriculture only.

QUEBEC.

H. W. Wood, St. Johns, Que., Secretary The Pomological and Fruit Growing Society of the Province of Quebec: It is a mistake to place the chief of the fruit division under the dairy commissioner. The interests of the fruit growers are of sufficient importance to entitle them to a separate commissioner. This, I believe, is the opinion of the great majority of the fruit growers of the province of Quebec.

NOVA SCOTIA.

John Donaldson, Port Williams, Nova Scotia, Director Nova Scotia Fruit Growers' Association: I am very strongly in favor of the appointment of a fruit commissioner who shall be independent of any other branch of agricultural work. I do not know of any other department of agriculture in Canada that requires more fostering care than does that of fruit.

PRINCE EDWARD ISLAND.

Rev. Father A. E. Burke, President Prince Edward Island Fruit Growers' Association: We are quite averse to this appointment, believing, as we said in our resolution, that the fruit division requires extension, not restriction, that it wants a chief more than grain or dairying. I cannot see what sinister influence is effecting this in the face of the protests gone up from the fruit men of Canada.

The foregoing are only a few of many expressions of opinion received from fruit growers. The Horticulturist will be pleased to hear from other growers as to how they consider the situation can best be dealt with.

In Setting a Tree or Shrub sift some fine, rich dirt among the roots, just enough to cover so the boot will not injure them, then with all the strength and weight you can command stamp the earth down until it is solid, then fill in a little more dirt and repeat the stamping until the whole is nearly full; then fill the rest of the hole with loose dirt and leave it with the soil pitching toward the tree from all directions. If it is properly set you cannot pull it up. Do not try to put all the earth back, but throw away some. The same general rules apply to everything from a strawberry plant to a shade tree.

Cooperative Spraying.—Last year was our first experience in power spraying and we undertook a little too much, so that we only covered the route three times, and our pressure was not altogether satisfactory. Where work was done carefully results were quite satisfactory, and with last year's experience we expect a great improvement this season.—(W. R. A. Ross, Sec.-Treas. Chatham, Ont., Fruit Growers' Association.

THE SEEDLESS APPLE IN CANADA

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

A WONDERFUL seedless apple is said to have been developed by a western experimenter. There have been seedless apples in Canada for many years. One was exhibited at the annual meeting of the Ontario Fruit Growers' Association at Brantford, Ont., December 19, 1900. In the report of that meeting the following reference is made to it:

"A curiosity in the form of a seedless apple was shown by Mr. W. A. Whitney, of Iroquois, Ont. The apple was quite normal in outward appearance and of good size. Mr. Whitney says that none of the apples contain seeds."

As Mr. Whitney is dead, I wrote to Mr. A. D. Harkness, Irena, Ont., for information regarding this fruit. He obtained scions from the tree for me last spring. It was reported by the owner, Mr. L. Cameron, Ont., to be both seedless and bloomless. I asked Mr. Harkness to obtain some of the blossoms or places from which the fruit sprung, and the following description was made of them:

"Apetalous apple blossoms received from Mr. A. D. Harkness, Irena, Ont., from tree grown by Mr. L. Cameron, Iroquois, Ont., May 26, 1904: About one dozen flowers received. Flowers in clusters averaging three each. Calyx apparently very similar (these were not compared with the calyx of perfect flowers at the time) to that of ordinary flowers. Petals abortive, very small, and hidden by the sepals. Flowers evidently all pistillate. Appear to be 15 stigmas to each flower. W. T. Macoun."

Knowing the interest in seedless apples I visited Iroquois, August, 1904, and went to see the tree, which is in Mr. Cameron's garden. It was found in a very thrifty condition, but with no fruit. This lack was explained by the fact that there were practically no apples in the orchard last year, hence the pistillate flowers could not be pollenized. Mr. Cameron informed me that it was a seedling tree about 10 years old, and probably fruited for the first time in 1900, when the fruit was shown at Brantford. He has this seedless apple top grafted on another variety in addition to the original tree. The apple, as shown at Brantford, was a rather handsome yellow apple, above medium in size and of fair quality. I remember testing it and noting that it was seedless. It was an early winter variety. Next summer we hope to obtain a full description.

In April, 1904, the following item appeared in the Prince Edward Island Farmer:

"In a recent issue of the Farmer we published the result of an experiment in apple growing by which a noted Colorado orchardist, after seven years of experimenting, had succeeded in producing a seedless apple. It was noted that the tree bearing this scientific wonder bears no blossoms, and that the fruit resembles a naval orange. Last Saturday, to our surprise and pleasure, we received a box of seedless apples grown last year in the orchard of Mr. Hugh Ramsay, Port Hill, with the explanation that similar apples had been grown yearly on the same tree during the past 30 years. Examination shows that the apple is entirely solid; there are no seed chambers nor any semblance of seed; it is well formed, richly flavored, and a good winter keeper, the samples received being firm and fresh, although stored in ordinary barrels. The tree bearing this peculiar variety was full grown and bearing heavily when Mr. Ramsay came into possession of his farm 30 years ago. Since then it has been a heavy bearer yearly, and in no case has a seed ever been found in any of the fruit."

I wrote to the editor and also to the owner of the fruit, asking for specimens, but unfortunately the best were gone, the speci-

men received being small and the quality, judging by the fruit tested, not more than medium. The core was small and was situated nearer the calyx than in ordinary varieties, and the cartilaginous part of the core was not as thick as in varieties with seeds. There were no seeds. I have tried to obtain fruit again this winter, but so far without success.

When attending the annual meeting of the Prince Edward Island Fruit Growers' Association in December, 1904, I was shown a specimen of a seedless apple grown by Jesse A. Wright, North Bedeque, P. E. I. This apple was past best condition, but was seedless, with a small core confined to the calyx end of the apple.

Unless a seedless apple is as good or better than a McIntosh Red, Spy, King, or Spitzenburg, it is of little practical value, unless for evaporating or canning, and as so many culls and windfalls of well known varieties can be obtained for this purpose, seedless apples, unless of great merit, will not be popular. It is possible that by cross breeding seedless apples with varieties of the best quality something will be produced of real commercial value, and one of the Canadian seedless apples is being propagated at the Central Experimental Farm with the object of being used for such work.

Seedless apples are not novelties, as they have been recorded for nearly 300 years, and were probably known before that time. The last time the seedless apple received such public notice as now was about 15 years ago.

PARIS GREEN AND THE BORDEAUX MIXTURE

PROF. W. L. LOCHHEAD, O. A. C., GUELPH.

IT is important for several reasons that good paris green should be procured for orchard spraying. The good paris green should contain between 50 and 56 per cent of arsenious oxide, which should be in combination with copper. As a matter of fact about four per cent. of the arsenious oxide is in a free state, known as soluble arsenic.

It is this free, water-soluble arsenic which makes paris green dangerous to plants. Lime is accordingly added to combine with this free arsenic and form an insoluble arsenite. When the amount of free arsenic is large, however, or when the paris green is of a poor grade, experience has shown that the addition of lime does not prevent the injurious action, but actually increases the amount of injury.

There are some good tests for pure paris green:

1. Pure paris green is entirely soluble in ammonia. The percentage of free arsenic, however, is not shown by this test.

2. Pure paris green has a bright green color—any dullness or whiteness is indicative of adulteration.

3. Under the microscope pure paris green should consist of clean green spheres, wholly separate from one another.

The water-soluble or free arsenic is sometimes very dangerous to foliage, especially during very dry weather with much dew or fog at night. It would appear as if the dew dissolved the arsenic, which is then absorbed by the plant. At other times very little or no injury results from the application of uncombined arsenic.

It is always wise to get the very best grade of paris green for orchard work, for such will contain no adulteration and but a small percentage of free arsenic.

It is unlikely that liquid Bordeaux will ever be replaced to any extent by the powder form in orchard spraying operations, for it is doubtful if the dust will cover every portion of the leaf as effectively as the liquid. Again, it would appear that the

action of the liquid Bordeaux is continued for some time in the presence of the lime, water, and carbonic acid of the air with the continued formation of copper compounds poisonous to fungous spores, and in some conditions poisonous to the plant itself. There is a growing tendency to reduce the quantity of lime in the making of Bordeaux, so as make the solution just about neutral. This is all right for ornamentals, and for orchard trees in dry seasons, but in wet weather the addition of extra lime is recommended.

Many growers state that they fail to get good results with Bordeaux. The main cause of failure lies in the quality of the lime used, the manner of slaking the lime to get the milk of lime, and the way the stock solutions are mixed in the spray tank or barrel. (1) The lime should be fresh and firm. (2) Only small amounts of water should be added to the lime in slaking. If too much water is added many small lumps will remain unslaked. When the lime is fully slaked considerable water should be added slowly while the whole is being stirred. (3) When the Bordeaux is being prepared from the stock solutions, the barrel of milk of lime should be thoroughly stirred, and the milk of lime—a thin white wash—emptied through a strainer into the spray tank. It is very essential that the concentrated stock solutions should not be mixed except in the presence of a large quantity of water.

It is advisable to use the 3-3-40 Bordeaux formula on Japan plums and peach trees on account of the tender nature of the foliage of these trees.

In districts where the lime-sulphur wash is not used on account of the absence of the San Jose scale, Bordeaux should be applied to prevent leaf-curl of the peach. It has been proven pretty conclusively that if a thorough application be made, a week or so before the flower buds open, the leaf-curl will be practically absent from peach orchards treated in this manner.

For the prevention of the black rot of grapes the first application of Bordeaux need not be made until the young shoots are 12 to 18 inches in length. The second application should be given immediately after blossoming, about the first week in July.

THE CORLESS APPLE EXCITEMENT

PROF. JOHN CRAIG, CORNELL UNIVERSITY, ITHACA, N. Y.

THE excitement over coreless apples has reached quite an acute stage. Royalty has become involved. King Edward is an honorary patron. The apple which started out as a seedless form has, in six months, travelling through various types of advertising media, reached the throne of England, leaving its core somewhere en route.

The whole story of this wonderful creation savors of quackery, and I am inclined to lose patience with horticultural journals which offer their columns to the exploiting of an absolutely unknown plant production in this generous, free and decidedly unsophisticated manner. Can it be that horticultural journals are becoming inoculated with the germ which develops a craving for sensationalism? Are they imitating the yellow hue of some of their strictly news-dealing contemporaries?

This introduction—invention it was first called in the associated press dispatch—has been advertised with more than ordinary skill. The seedless enterprise is being pushed by shrewd business men who are taking advantage of the avidity of newspapers for something novel and the credence and desire of the public for something different. I am not surprised that a paper like the Scientific American should be drawn into the net, because that is quite outside of its scope and purview, but I am astonished

to see The Canadian Horticulturist lend prominent space to the foisting on a gullible public something, which as yet is vague, indefinite, untested and may prove a fake so far as adding anything substantial and useful to our fruit lists.

By the way, is this company proceeding along the lines of those who, before selling, first prove the value of their acquisition by actual trial? Are the experiment stations to be given an opportunity to pass on the merits of the variety, or is this extensive advertising to proceed coincidentally with the propagation and sale of the trees? It would seem that the latter method is to be followed. Although the writer was promised specimens for examination last fall, they did not arrive for some reason; and unless I am misinformed, the samples exhibited in St. Louis were safely embalmed in antiseptic fluids and shown through a glass covering.

There is before me a copy of the National Fruit Grower, of St. Joseph, Mo., in which an extension or elaboration of the stock article published in last month's Horticulturist occupies a prominent place. Passing over the highly garnished statements of the incident of the sale of two specimens for 60 shillings in Covent Garden market, here are some of the statements volunteered by Mr. Sampson Morgan, of Broadstairs, England, the writer of this noted contribution: "In the near future seedless and coreless apples will be on sale in the fruit shops of every city in the United Kingdom." What prophetic vision enables this horticultural seer to pronounce on the success of this variety without a single trial having been made outside the grounds of the interested originator? "The tree produces a cluster of small green leaves like a disorganized bud. It is here that in due course the fruit forms." How astonishing! The apple is a multiple bud. As the winter bud expands in spring the several blossoms which it contains are disclosed. Apple blossoms without petals are not at all uncommon; several specimens of these apetalous blossoms were sent me last spring. The petal is not an essential organ.

We read further that there being no petals and therefore no fragrance, the codling moth passes it by unrecognized! The author of this ingenuous statement forgets (if he ever knew) that the codling moth gets in its fine work after the petals fall and the fragrance (?) has departed. True, like the writer of the interesting article, a second sight may enable it (the moth) to look within and discover the abnormality of the specimen and thus be frightened away. Again, "the trees are being propagated from buds, no seeds being available." Another revelation! Now, it may not be known to Mr. Morgan, but it is a fact nevertheless, that nurserymen have been propagating named varieties in this country by graftage, in which buds are used in various ways, since the settlement of the country. History further informs us that this method came to us from the Greeks and Romans or possibly an older civilization. We grow pansies and pop corn from seed, not apple trees—unless we are after something different.

Again this optimistic writer says: "The permanency of the seedlessness of the Spencer apple is beyond dispute. Over 2,500 trees are already in hand, and the stock is being extended." I am somewhat in doubt as to the nature of the stock referred to, whether the watered article of the company or the stock of this variety. My advice is to take little of either until you absolutely know what you are buying. Listen to this! "Arrangements are in progress to ensure ample supplies of these wonderful novelties in England, and their arrival will be duly announced in the advertising columns of the general press." We understand that a stock of 2,500 grafts will, in Jack-the-Bean-Stalk style, grow to bearing size and furnish enough fruit so that after satisfying the American market there will be a suffi-

cient surplus to supply the English markets in a short time. Perhaps this will come to pass. A single barrel of some varieties will go a long way.

But we must continue our examination of this fascinating article. "Probably half a dozen trees have appeared at different places bearing apples without seed. But these trees would not produce trees that bore seedless apples." Our best records show how seedless apples have appeared here and there for at least 200 years. But there was no associated press, and advertising facilities were painfully inadequate in those days, so that these seedless individuals lived only as local curiosities and died for lack of intrinsic qualities and business enterprise. There was an unusual outbreak of seedless apples in 1904—quite an epidemic, in fact —but the Spencer creation (method new and unknown) is the only one that caused more than a ripple before the eye of the horticultural public.

As one reads this startling article a feeling akin to the uncanny creeps over your being. It says, when standing alongside other pollen-bearing varieties, trees of this variety bear "a small percentage of the apples with one and sometimes two or three seeds, but they (the seeds) are just as apt to be in one part of the apple as the other. For instance, he (Mr. Spencer) has found a seed within one-eighth inch of the outer peeling, far removed from its core." Wonderful! Marvelous! Just think of a seed travelling around in the flesh of an apple like a needle in a man's body!

We learn further, in regard to the blossoms, that "there is a small quantity of pollen, also a stamen." This latter addition would certainly be a very necessary and antecedent attendant of the pollen. As to the characteristics of the fruit, we are also informed that these apples "grow as large as the ordinary winter apple." He may have had a Lady apple in mind; or, on the other hand, he may have meant a Fallawater. We are told that they are "red when fully mature," "contain much juice," "the flesh is firm and they are excellent keepers." An additional point of interest to the consuming public is whether they are good to eat.

Here is a statement by Mr. Morgan that I am inclined to agree with: "It has been proved that the further we get away from the original proposition (five trees) the larger and better is the fruit." My own notion that Mr. Morgan in England is just about the proper distance from this "proposition," and that before our American fruit planters take second or third hand information as loosely put together as this much-quoted article, for horticultural gospel, they should do a little thinking for themselves. Before buying any of the stock now being manufactured in the magic fashion hinted at, they should see, taste and examine the fruit. After this, buy for trial if you like.

Before closing this review there is one other quotation which should be made. It is this: "By desire (of whom?) the above record of the introduction of the coreless apple into Great Britain will be filed by the various state horticultural societies and colleges in America; also in England, Ireland, Scotland and Wales." Ho, ye secretaries! Sit up! Hear the mandate and govern yourselves accordingly. Speaking personally and as secretary of the American Pomological society, I shall wait for further instructions and information before filing a notice of the advent of this pomological marvel.

Now for a serious word in closing, while ridicule is not argument, there are times when it should be employed as effectively as possible. The claims of the article are absurd, inaccurate and impudent to a degree, when presented through recognized pomological channels to a reading and thinking horticultural public. What we should have now are disinterested opinions of those who have actually examined and tested this seedless wonder.

A Profitable Investment

IT would be difficult to find a fruit grower who is more firmly convinced of the value of spraying than is Mr. Joseph Tweddle, of Fruitland, Ont., whose place was visited recently by a representative of The Horticulturist. "I have been using a power sprayer for two years," said Mr. Tweddle, "with which I spray 100 acres of fruit, and my sprayer, although an expensive one, paid for itself, several times over, the first year. I spray two to four times, depending on the season, and aim to secure

Spraying in Mr. Tweddle's Orchard

75 to 90 per cent. of clean apples. My peach trees are only sprayed once.

"For killing insects, such as the curculio, my belief is that the old formula of four ounces of paris green to 40 gallons of Bordeaux is not strong enough to do quick work, as the insects are able to do considerable damage before that solution, which works slowly, destroys them. I use half a pound of white arsenic of lead, costing five cents, which is boiled for three-quarters of an hour in one pound of fresh lime, or boiled with two pounds of sal soda. This mixture has proved very effective. If applied too coarsely it may burn the trees, but if the spray is fine no damage should occur."

Trimming Trees

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

What season or month is the best for trimming trees? Should all fruit trees be pruned at the same time? When should shade trees be attended to?—(Amos Bruge, Brantford, Ont.

The safest time to prune or trim trees of all kinds is early in the spring after severe frosts are over and before growth starts. There is then little danger of the trees being injured by frost and severe winter weather, and wounds made at that time heal readily.

With maples and other trees, which naturally bleed freely when pruned, it is just as well to leave the trimming till late in the spring when they will not bleed so much. Bleeding is not so serious an injury as is usually supposed, but often forms a lodgment for spores of fungous diseases, which are the cause of rot.

Arrested Growth of Trees

W. T. MACOUN, C. E. F., OTTAWA.

I have some apple trees planted last spring that have not shown any sign of growth; also an Austrian pine. The apple trees are green and the pine holds its leaves. Will they grow this spring, or would you advise planting other trees in their places?—(Chas. Derdaele, Walkerton, Ont.

If the apple trees and the pine tree were alive in the autumn of 1904 it is quite likely they will live. It frequently happens when trees are received in poor condition, or if the soil is not properly prepared, or the trees not planted carefully, they will make little or no growth during the first season. If the winter is very severe it is quite possible they may die, as trees that are not in a thrifty condition suffer, but the chances are that they will live.

Spraying at the College

PROF. W. LOCHHEAD, O. A. C., GUELPH.

SPRAYING operations usually begin at the college about April 20. As a matter of fact spraying begins as soon as the orchard can be entered by a horse and cart, and no set date can be laid down. Much attention is given to the first operations, for more good can be done at this time than at any other.

The resting spores of many of the common fungi, such as mildew, scab, canker and leaf curl, and the small insects, such as the bud moth and the case bearers, which winter as half-grown caterpillars, are not yet active. An application of Bordeaux mixture and paris green at this time, before the buds have begun to open, will be very effective, not only in preventing the fungous spores, which will soon be carried to the twigs and buds by the wind, etc., from germinating and entering the tree, but also in killing the worms when they attempt to satisfy their hunger after the long winter sleep.

It usually takes two days to spray an orchard thoroughly, and for the first half day the instructor works with the men to whom are assigned the task. They are left to themselves as soon as they have shown themselves capable of doing the work properly. Our orchard is chiefly composed of small trees, consequently it is not difficult to get at all parts of every tree and do thorough work. A second application of Bordeaux and paris green is made before the blossoms open, a third after the blossoms fall, a fourth and a fifth are applied during the season at intervals of two or three weeks.

Sometimes it is advantageous to give three applications before blossoming in apple orchards, but if the first application is thorough there is little need for the one which is usually made a week later. Spraying just before the blossoms open will destroy the newly hatched canker worms and tent caterpillars, and prevent the scab and leaf spot. The application made just after the blossoms fall is intended specially to control the codling worm. The later applications, especially the one about July 1, are important, as they control the Palmer worm, apple bucculatrix, and the scab.

Saving Injured Trees

COMPARATIVELY few fruit growers attempt to save their trees which have been injured by mice. Where the cambium layer or inner bark has not been completely removed around the trees they may frequently be saved by keeping the remaining new wood moist until the growing season. This may be done by erecting a mound of fresh earth to cover the wound, by binding the wound with a mixture of clay and cow manure, half and half, covering the whole with burlap, or by simply covering the wound with grafting wax. As it is impossible always to tell by a simple inspection whether the cambium layer has been all removed it will pay in most cases to try one or other of these methods.

Bridging is practised by many quite successfully. Mr. W. W. Cox, of Collingwood, has some old trees which have never failed to bear good crops that were girdled when they were five inches in diameter for a distance of one-half foot or more. The method which he found successful consisted in boring a hole above and below the wound to a depth of half an inch or more with a half-inch bit, using for a scion a branch slightly larger than this in diameter. The ends were cut with a slope and the length was such that they could be inserted readily into these holes, above and below the wound, retaining their position by the elasticity of the wood. The points of union were covered with grafting wax and the bare wood about the trunk protected with common paint.

STRAWBERRIES AND THEIR CULTURE

W. T. MACOUN, HORTICULTURIST, EXPERIMENTAL FARM, OTTAWA.

DURING the past 16 years more than 400 named varieties of strawberries have been tested at the Central Experimental Farm, Ottawa, under as nearly uniform conditions as possible. Every year many new varieties are offered for sale, some at very high prices. It has been the aim to test these alongside older varieties and find out whether they are any better. Ninety-five per cent. of the varieties introduced every year are inferior to the best varieties already grown.

Many kinds are discarded at the farm every year, having been tested long enough to judge of their merits. In 1904 there were 196 varieties tested. As the average results are more conclusive than those for a single year, the following 12 varieties, which have averaged best for four years, are those which would be likely to prove most productive when the conditions are the same as at Ottawa, the soil being a rich sandy loam not lacking in moisture.

Most productive 12 varieties in order of merit:

1. Mele, Perf. This is a wonderfully productive berry, but being rather soft is not highly recommended. Fruit above medium size, roundish or pointed conical, pale but glossy red. Quality medium.

2. Sample, Imp. The Sample is undoubtedly one of the best commercial strawberries on the market. In is very productive, handsome and uniform in shape. Fruit large, bright and rather deep glossy red, and moderately firm. Season medium to late, quality medium.

3. Buster, Imp. Although not generally known, the Buster is another fine variety. It is very productive, and the fruit, which is large, maintains its size well to the end of the season. The color is pale, glossy red, much like Clyde in appearance. Moderately firm; quality above medium; season medium to late; foliage very good.

4. Bisel, Imp. This variety has been lost sight of to a large extent owing to so many new and much advertised varieties being given such prominence, but it is one of the most productive and handsomest berries tested at Ottawa. It is a superior variety. Fruit large, roundish, bright red, moderately firm. Quality above medium; season medium to late.

5. Afton, Imp. Can see no difference between this variety and Warfield.

6. Steven's Early, Imp. Appears identical with Warfield.

7. Glen Mary, Perf. The Glen Mary has for years been one of the most productive varieties at the Central Experimental Farm. It combines great productiveness with very large size of fruit, the fruit remaining large until the end of the season. Fruit very large, rather irregular in shape, bright red, moderately firm; quality medium; season medium. The irregularity of the fruit is somewhat against it.

8. Daisy, Imp. The Daisy is a variety which was sent to the experimental farm for test 16 years ago and has always proved exceedingly productive. Fruit above medium size, uniform in shape, round-conical, rather soft, bright glossy red. Quality medium; season medium. A very attractive berry but a little soft.

9. Greenville, Imp. This variety has proved very productive here, but on account of its good quality is very desirable for home use as well as market. Fruit large to very large, roundish or wedge shaped, moderately firm to rather soft. Quality good; season medium. More suitable for near than for distant market.

10. Daniel Boone, Imp. This variety appears identical with Warfield.

11. Howard's No. 41, Imp. A firm, productive, medium to late variety with medium sized deep red fruit.

12. Enhance, Imp. This is another variety which has not received the attention it deserves. Fruit above medium to large, roundish, deep red, firm. Quality above medium to good; season medium. Should be an excellent variety for shipping long distances.

Warfield, Imp. While the Warfield comes thirteenth in order of productiveness, it may deserve fifth place if the Afton, with which it seems identical, is the same variety. The Warfield is one of the very best of the older varieties, being very productive and of an attractive, deep glossy red color. It is one of the best varieties for canning. The foliage is inclined to rust sometimes, which is somewhat against it. Quality medium. Season early to medium.

Others which closely follow the above are Marie and Beder Wood, the latter being one of the best all-round early perfect varieties. For home use would suggest Bubach, Greenville, Lovett and Beder Wood as among the best. Williams, which is probably grown more than any other variety for long distance shipment, came twenty-ninth in the four years average. It is one of the best for this purpose, but Enhance should be given a fair trial.

Strawberries succeed best on rich, well drained soil which will not bake easily. Thorough preparation and heavy manuring will give best results. Seldom, if ever, are strawberries too heavily manured. There are many systems of growing plants, but for those who are not strawberry specialists, and even in most cases for those who are, the matted row is the best. Plant early in spring when the soil is ready, setting the plants 18 inches to 24 inches apart in rows three and a half to four feet apart. Give thorough cultivation during the growing season. The looser the surface soil is kept the better the results will be.

Place the runners, if possible, so that they will be evenly distributed in the row. If the plants are kept at least six inches apart the results will usually be better than if closer. Mulch lightly just before winter sets in and after the ground is frozen with coarse straw or marsh hay. Frequently this will save the plants in thawing and freezing weather without snow on the ground, when otherwise they would be killed. Remove mulch in spring before plants begin to grow and place between the rows. It may smother the plants if left too long.

PRUNING FRUIT BUSHES

H. S. PEART, B. S. A., O. A. C., GUELPH, ONT.

AMONG the things that should occupy the attention of the farmer and fruit grower one of the first in importance is the pruning of his fruit trees and bushes. In the farmer's garden the bush fruits are very generally neglected, though the pruning which they require is simple in nature and can be done with comparatively little labor. The following directions may serve as a guide for some who have bushes to prune this spring:

The pruning of raspberries may be summed up briefly as follows: Remove the old canes after fruiting; thin out the weakest of the new canes so that the row may not be too thick; head back the new canes to about three and one-half feet, so that good strong lateral shoots may be developed near the ground. Strong laterals may be headed back about one-half. In some localities where there is danger of the canes being injured during the winter, it may be best to leave the pruning until spring, but where there is no danger of injury from frost the work is as well done in the fall.

Blackberries or thimbleberries should be

pruned much the same as raspberries except that the new canes should be left somewhat longer, four to four and one-half feet being considered about right. It is generally advisable to prune blackberries in the early spring, as the canes are liable to freeze back during the winter.

GOOSEBERRIES.

Without care gooseberries become a tangled mass, which prevents the proper development and the easy harvesting of the crop. The fruit is borne on one, two and three-year-old wood, mostly, however, on the one and two-year-old wood. The aim should be to replace the three-year-old branches with good healthy new shoots very early each season. Six main branches, two of which may be replaced annually, is a good base from which to build the frame of the bush. Head back the new growth about one-third and keep the bush just open enough to permit the easy harvesting of the fruit. If opened up too much there is danger of the fruit being injured by sun-burning.

Currants are borne on the short spurs arising from the old wood, and near the base of the new shoots. Two-year-old canes produce the finest quality and the largest quantity of fruit, although some fine berries may be produced on the three-year-old branches. Train the bush to six main stems, two of which may be removed each season and replaced by two vigorous young canes. All other new canes arising from the ground should be removed. Head back the two new shoots about one-half and all other branches one-third. Keep the head of the bush open enough to permit the free circulation of air and to admit sufficient sunlight to ripen the fruit properly.

The treatment of black currants does not materially differ from that of reds. The fruit is borne on one-year-old shoots arising from older branches. As the bushes grow larger and stronger than the reds, it is well to leave about eight canes, renewing two each season. Head back the growth severely to encourage the formation of many new spurs from the old wood for the production of fruit. Leave the head open enough to permit of free circulation of the air and the entrance of sunlight to the centre of the bush.

This Berry Needs a Trial

PROF. H. L. HUTT, O. A. C., GUELPH.

I have been thinking of planting Lucretia Dewberry, and if so of trellising them. Would it be a more desirable variety than Erie or Kittatiny ?—(W. O. Burgess, Queenston, Ont.

I would not advise planting largely of Lucretia Dewberry until you have given it a trial on your soil. It has done well here, although none of the blackberries are very satisfactory in this section. At A. E. Sherrington's Experiment Station, Walkerton, Lucretia has done very well, but I am doubtful if it would be as profitable as some of the best blackberries, such as Kittatiny, Agawam, or Eldorado. Your best plan would be to get a few plants and give them a thorough test along with the varieties of blackberries mentioned.

Pedigreed Strawberry Plants

E. B. STEVENSON, PONSONBY, ONT.

AS a result of experiments with many different varieties of strawberries I can recommend the following varieties:

List for growers and season of fruiting.

Extra Early and Early Kinds.—Excelsior, Success, VanDeman, Michel, August Luther, Cameron's Early, Palmer, Monitor, Johnson's Early, Beder Wood, Clyde, Sampson, Lord Sheffield, Texas.

Mid-Season.—Bubach, Haverland, Lyon, Splendid, Marie, Bismarck, Tennessee Prolinc, Ruby, Glen Mary, Saunders, Sample, Williams, Wm. Belt, Lount, Senator Dunlap, Miller, Brandywine, Emperor, Nick Oliver, Mrs. Fisher, Woolverton, Parson's Beauty, Minuteman.

Late to Extra Late.—Joe, Klondike, Gaudy, Lester Lovett, Nettie, Robbie, Timbrell No. 18.

From the foregoing list growers can choose the kinds best suited for their soil. I would caution them to beware of the seller of pedigree plants who makes extravagant claims. Pedigree applies to highly bred animals in one continuous line for many years. Very many of our best strawberries are chance seedlings, found growing in fence corners, on stone heaps or in places frequented by birds that feed on berries.

Many people do not know how strawberry plants are propagated, and are deceived by the man who claims his plants are pedigreed (which claim he makes for the sole purpose of selling) and that they are superior, which is a great mistake. I once obtained some of these pedigreed plants, and when they came I discarded a good many. I called them runts, and the ones I planted did not do as well, by any means, as my own plants. This pedigree business is a great fraud worked on unsuspecting growers.

Diseases of the Grape

DISEASES of the grape was the subject of Mr. W. T. Macoun's remarks before the Niagara Peninsula Fruit Growers' Association at their meetings in March. The diseases described in detail were the black rot and brown rot or downy mildew, for which spraying with the Bordeaux mixture was prescribed; powdery mildew, the remedy for which is dry sulphur; anthracno or bird's eye rot, which has appeared in the eastern part of the province but is not very prevalent; and leaf blight, for which Bordeaux mixture is the remedy.

Last season many buyers would only buy grapes grown on clay soil, and the question arose whether those grown on sandy soil are more subject to disease. Last year, Mr. Macoun said, he visited Mr. W. H. Bunting's vineyards at St. Catharines, which had been sprayed seven times, and the grapes were almost perfect. He saw another yard of 15 acres which had not been sprayed, and there was not a good bunch to be found. This proved the advantage of spraying in the vineyard.

Cultivation of Carnations

"I GET the best results with carnations by keeping them inside," remarks Mr. A. Neal, Stratford. "I start the cuttings and keep them moving to larger pots frequently, never allowing them to become root-bound. When grown in this way they can be put in the benches a month or six weeks earlier than when grown outside. Then I am sure of a good crop of bloom for the Christmas market, which is always wanted. The main object is to keep them growing continually from the time they are rooted until they are in bloom.

"When grown outside they should be set out as soon as danger of frost is past. Keep them well watered and well cultivated so that they will not receive a check. After about three months, or about the middle of August, I put them back in the benches, and if everything has been favorable get a crop of bloom by Christmas. Sometimes, however, weather conditions are such that I miss the Christmas trade by putting them out. Besides there is a more abundant bloom of much finer quality with most varieties when grown inside. The best commercial varieties with me are Lawson (cerise), Enchantress (pale pink) and Queen Louise (white)."

After the welcome bloom of the tulips has gone, if you planted deep, leave them and cultivate over them. If not, take them up and heal them in the ground, out of the way, until they ripen. Then break off stem, dry like onions and store for next fall.

ORNAMENTAL SHRUBS

PROF. H. L. HUTT. O. A. C., GUELPH.

OF late years there has been considerable inquiry regarding the most desirable shrubs for lawn planting. The answer to such a question depends on the locality, as there are a number of very desirable kinds wihch can be grown in the southern sections of the province but which would not do at all for the north or east.

We have had an excellent opportunity on the college grounds of studying a large

Philadelphus Coronarius

number of the more hardy kinds and are pretty safe in saying that what are hardy enough to do well here will do well over the greater part of the province.

From careful observations for 10 years I would select the following as a dozen of the best hardy ornamental shrubs from among about 200 species and varieties which have been planted here. The list is given in the order of their season of bloom and covers th season fairly well from the earliest bloom in the spring till frost destroys the last in the autumn:

Forsythia suspensa (Golden Bell). An open, spreading bush about six feet in diameter. Flowers large golden bells, an inch or more across, appear before the leaves, about the end of April, and last about three weeks; very showy.

Ribes aureum (Golden Currant). A very hardy vigorous growing bush about six or eight feet in diameter. Flowers golden yellow, very abundant, and having a delightful spicy fragrance. In bloom May 9 and lasts two weeks.

Pyrus japonica (Japan Quince). A showy bush six or eight feet in diameter, with glossy green foliage. Half hardy when young, but after a time becomes acclimatized and quite hardy. Flowers large and brilliant scarlet, some varieties pink and white. In bloom about May 15 and lasts nearly three weeks.

Caragana frutescens (Siberia Pea Tree). A very hardy showy little bush about five or six feet in diameter. Has a luxuriance of fine light green foliage, which appears early and is followed about May 24 with an abundance of clusters of pea-shaped yellow flowers. Bloom lasts a little over a week.

Syringa vulgaris (in variety, Lilacs). The common lilac is so well known as not to need description, and is appreciated by all who grow it. There are a great many improved varieties, with single and double flowers, varying in color from white and pink to dark purple. In bloom about May 24 and lasts for two weeks or more. Some of the Chinese and Japanese species are very desirable and extend the season of bloom to July 1.

Pyrus angustifolia (Bechtel's double-flowered American Crab). This is a crab apple tree of medium size, and very hardy. Four years after planting it began to bloom and bears large double pink flowers an inch and a half in diameter. At a distance they look like small roses and are very fragrant. In bloom about June 1 and lasts about two weeks. These handsome flowers make such dainty buttonhole bouquets that on public grounds, such as ours, the tree becomes the prey of all bouquet lovers.

Spiraea Van Houtei (Van Houtte's Spiraea). This is one of the best of the

spiraeas. It makes a graceful, symmetrical little bush about five feet in diameter, with slender drooping twigs. The bloom is pure white, very profuse, appears the first week in June and lasts about two weeks.

Virburnum opulus sterile (Snow ball). This is a hardy free-growing shrub, about ten feet high, which bears large round clusters of pure white flowers, which look like snowballs. In bloom about June 4 and lasts over two weeks.

Lonicera tartarica (Bush Honeysuckle). A very hardy symmetrical bush 10 feet or more in diameter. Has an abundance of bloom every year, which appears the first week of June and lasts about a week. The bloom is followed by showy red or orange fruits which make the bush attractive long after the bloom is gone. There are red, pink, and white varieties, all of which are worthy of a place on the lawn. Good varieties may easily be grown from the seed.

Diervilla rosea (Rose colored Weigela). This is a handsome bush which is only half-hardy here when young, but becomes hardier with age. It makes a bush five or six feet in diameter. The flowers are large and bell-shaped, appearing among the foliage the first week in June and lasting nearly three weeks.

Philadelphus coronarius (Garland Syringa). A hardy vigorous bush about 10 feet in height, bears large white fragrant flowers like orange blossoms. In bloom about June 15 and lasts over two weeks.

Rhus Cotinus (Purple Fringe or Smoke Tree). A hardy, thrifty shrub which

Lonicera Tartarica

grows 10 or 12 feet high and makes a shapely bush. About the middle of July it comes in bloom and from that till autumn it is covered with curious fringe or plume-like flowers, which are very showy.

Hydrangea paniculata grandiflora. A somewhat straggling growing shrub, which may become six or eight feet high, but is better when pruned back severely every spring, the same as roses. It bears large panicles of white flowers. In bloom about the middle of August and lasts three or four weeks.

Planting Peonies

PEONIES are raised in a very simple way. Any loamy land, good enough for corn or vegetables, will do for peonies. Plow two furrows deep and set the plants quite closely together. Fertilize the land at least one season before planting. Never under any circumstances put manure or other fertilizer directly under or among the roots at the time of planting.

September is the best time for planting, but they can be moved up to November or very early in April, before the spring growth begins. If the planting is left until autumn a whole year's root growth, as well as a season's blooming, is lost. Full grown prize flowers must not be expected the first season. The plant needs two or three years in which to get well established and do its best. The time of blooming varies considerably with the different varieties.

CHRYSANTHEMUM WORK FOR APRIL

GEO. HOLLIS, BRACONDALE, ONT.

CHRYSANTHEMUM cuttings for exhibition purposes should be taken during March or even earlier, although they can be taken in April, as a long growing season is required to develop a good stem and a larger flower. Should you decide to try some of the novelties, your order should be placed at once, as the growers start shipping as soon as danger from frost is over. By ordering now you can top your new cuttings, and in this way increase your stock before planting time arrives.

In growing chrysanthemums, for either exhibition or commercial use, the secret of success is to never let them get a check from the time of taking the cuttings to flowering time. The method generally used is to place some clean, sharp sand in a bench or flats about three inches deep, in a temperature of 55 or 60 degrees, shaded from the sun, and to keep the sand rather wet. Select the best cuttings, which should be strong and not hard wooded, and in two or three weeks the cuttings should be rooted. Remove them from the cutting bench, shake the sand from the roots, and pot in small pots. The soil should not be too rich at first. Shade from the sun for a few days, but afterwards give them a sunny position and lots of air. In about two weeks they should be shifted into three-inch pots, and by the second week in May they should be ready to plant in the bench, or, if they are to be grown in larger pots, a larger pot will be required.

If grown for cut flowers the main lot of cuttings need not be rooted before May first, but if short of stock, root all the cuttings you can get. When they are large enough, take the tops and root them.

STANDARD VARIETIES.

The following is a list of standard and tried varieties:

White.—T. Eaton, W. H. Chadwick, Western King, Mrs. H. W. Buckbee, Mrs. Nathan Smith, Convention Hall, Kalb.

Pink.—Dr. Enguehard, Mrs. H. Flick, Marie Liger, A. J. Balfour, Wm. Duckham, Marion Newell.

Yellow.—Golden Wedding, Golden Chadwick, Yellow Eaton, Mrs. Thirkell, Percy Plumridge, Cheltoni.

Red.—S. F. Wright, Lord Hopeton, G. W. Childs, Harrison Dick.

GOOD POTTING SOIL

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

LATE autumn or early spring is the best time to make the compost heap. An excellent method of securing a good pile of potting soil is to obtain some good tough sod from an old well fed down pasture field, where the soil is of a loamy nature. Cut the sod about four inches thick and stack it in the open where it will be fully exposed to the weather.

Place the first layer of sods with the grass side downward. On this place another layer of sod, grass side downward, as before, after which spread on a layer of well rotted stable manure or cow manure, to the depth of three or four inches. Repeat with two layers of sod and one of manure until the pile is large enough. Build the pile upright and keep it perfectly level until finished.

It will take eight or ten months for this material to rot sufficiently for use in potting plants. When it is ready cut down from top to bottom with a sharp spade, as required. The proper proportions of soil and manure to make a good rich compost may be obtained in this way. The soil will make a good compost for bulbs, roses, geraniums and the more common plants. For begonias, fuchsias and the more tender plants, or for sowing seeds in, about one-

seventh part of fine sharp sand may be mixed with the potting soil. Cover the pile of potting soil lightly with brushwood to keep away chickens or animals.

In country places or on farms there should be do difficulty in securing a pile of potting soil. In towns or cities it would, perhaps, be better and cheaper for the plant grower to buy a bushel or two of prepared potting soil from a florist.

Good, sweet, fresh, potting soil is one of the main essentials in floriculture. The soil should be sifted through a sieve having a three-quarter inch mesh, so as to remove any sticks or stones before using it. The fibry matter and the rotten manure should be all passed through the sieve to mix with the soil.

I have known amateur plant growers pack the sod and manure, as described, in an old box or packing case, and by this means secure a good quantity of potting soil. This compost would also be very useful to market gardeners for use in hot beds. One layer of sod to three or four of manure would probably be a better proportion for raising early vegetable plants.

STARTING ANNUALS

W. G. ROOK, TORONTO, ONT.

THERE are several flower seeds which can be sown indoors during April. Nearly all annuals may be bloomed at least one month earlier by starting them now. For the amateur who has not the convenience of a greenhouse or hot-bed, windows with a southern exposure may be used for the boxes in which the seeds are sown.

Obtain shallow boxes about three inches deep and small enough to lift easily. Should it be desired to plant more than one kind of seed in a box, partitions may be inserted. Bore holes in the bottom, about six inches apart, for drainage. Partly cover the holes with concave pieces from a broken flower pot. Take the coarse material which cannot be run through a sieve and make a layer, about half filling the box. Spread over this soil that has been made rich with manure or fertilizer and sifted. Press the soil firmly with a piece of board, after which the seeds may be sown.

Showing Box and Method of Drainage

Sifting in the Fine Earth

They should be covered with soil to about four times their diameter, the large ones about half an inch deep, and the very fine ones hardly more than below the surface. There are seeds so fine that sowing them on the surface is sufficient. Some people prefer sowing the seeds in rows one inch or more apart, others sow them broadcast. Do not neglect pressing down the soil firmly with a board both before and after sowing. This is very important.

Moisten the soil with a bulb sprayer. Care must be taken to have the box flat and not to give too much water at once, so as to

avoid washing out the seeds. Always keep the soil moist. Should it become dry after germination begins the plants will never fully recover or be as healthy as if properly cared for.

Pressing Down the Soil

Mark each box with a label giving the name of the variety and date of planting. When seedlings show their first pair of leaves developed and the next pair started they should be transplanted to give more root room. Boxes such as have been used to sow seeds in will be the best, or seed pans flower pots, or any other article of a similar nature, will do.

Seedlings should be lifted carefully and the soil around their roots not broken. Take the plant between the thumb and finger of the left hand, and with a small stick make a hole in the soil deep enough to cover the plant close up to the leaves and press the soil firmly around the roots. Give a light sprinkling with water, and shade for a few days until the roots begin to grow and the plants stand up, after which place in the strong sunlight. Turn the box every few days as the plants always grow towards the light. When the bright warm days come the boxes should be placed outside during the day to harden the plants before they are planted in the garden.

THE SHAMROCK IN IRELAND

HORTUS SYLVA.

SINCE Victoria of Blessed Memory proclaimed the wearing of the green on the 17th of March all classes and conditions of people try to get a shamrock to wear on that day. It makes very little difference to the wearer of the shamrock what the plant is so long as it has a three divided leaf. Many varieties of plants are sold as the "rale true shamrock of Ould Ireland," and the less they know about it the more positive they are of being in possession of the real shamrock.

No doubt the plant that St. Patrick used to illustrate the doctrine of the Trinity is lost in antiquity, and at best we can only conjecture as to the plant he used for that purpose. Much has been written in the past, some writers holding to one plant and others just as positive to some other. It would not be time lost to refer to some of the plants that have occupied a prominent place in those discussions. Botanical history throws some light, and is more reliable to guide us than folk lore or legends. White clover has often been referred to, in fact the writer once had a sod of clover given him that was brought from Ould Ireland as the real true Irish shamrock. The white or Dutch clover was not introduced into Ireland till about the 16th century, more than a thousand years after St. Patrick had passed to his rest, so white clover must be discarded.

Oxalis Acetosella, or Wood Sorrel, is a plant growing in the woods all over Ireland from time immemorial. Being common it is considered a weed, but it is a lovely little plant. There are two species, the white and the yellow flowered. The plants resemble each other very closely, but Stricta has yellow flowers two to six on each peduncle, the foliage being of a pleasing green color. Acetosella has white flowers on a single scape; the foliage is of a reddish green color.

In some parts of Ireland the peasants

make quite a little money by the sale of seed and plants. One tourist describes their method thus: They stand a plant in a large tin pan; when they touch the long shaped pod it bursts open, scattering the seed. The seed is gathered and put up in packets and sold to tourists for 62 cents.

A VARIETY OF CLOVER.

Trofolium Minus, a variety of Trifolium Repens or white clover, has been sold by seedsmen as the shamrock, also Trofolium Procumbens, the low hop clover. The Medicago Lupulino, of black medick, is another claimant for the distinction. The English and Irish have the trefoil figured on their coins.

Brewer's Dictionary of Phase and Fable says: "So far as I have been able to find the shamrock is not mentioned by Shakespear. Under the word "clover" the author of Plant Lore of Shakespear says of the clover there are two points of interest that are worth notice. The clover is one of the plants that claims to be the shamrock of St. Patrick. This is no a settled point, and at the present day the wood sorrel is supposed to have the better claim to the honor, but it is certain that the clover is the club of the pack of cards. In England we paint the clover on our cards and call it clubs, while in France they have the same figure, but call it trifle. It is certainly curious, says one writer, that the trefoil in Arabic is called shamrock, and was held sacred in Iran as emblematic of the Persian triads.

Pliny in his Natural Hictory says that serpents are never seen on the trefoil, and it prevails against the stings of snakes and scorpions. If such were the case no more suitable emblem could have been chosen by St. Patrick, seeing that he is said to have driven such hideous reptiles from the Emerald Isle. This tradition makes it even doubtful if the whole thing is not a myth.

"The dear little, sweet little shamrock of Ireland
Thrives only on starvation.
Good food, justice and kindness kills us all."

FLOWER GROWING ON AN EXTENSIVE SCALE

WHEN Mr. John H. Dunlop, of Toronto, commenced growing flowers in an amateur way, in 1880, with a modest greenhouse six by twelve feet, none of his friends expected that within 25 years he would become one of the leading professional florists in Canada. Yet that is what he has done. From this small beginning Mr. Dunlop has succeeded in adding to his business year by year until he has the second largest floral establishment in Canada and one of the largest on the continent. His greenhouses number 36 and cover about four acres of land. There are 150,000 square feet of glass in his greenhouses.

So well known has Mr. Dunlop's establishment become it is considered one of the sights of the city by many amateur and professional florists who visit Toronto. One of his recent visitors was an editorial representative of The Horticulturist, who was entertained in a most interesting manner by a trip (it was nothing else) through the various greenhouses. Believing that time is money Mr. Dunlop has planned his greenhouses so that no time need be lost visiting any section of them. The office and work rooms are located in the center and are thus convenient to all the greenhouses.

The first greenhouses entered from the office were two, 140 feet long each, devoted to the growing of Meteor roses. "This is one of the most productive varieties," said Mr. Dunlop, "but it is giving growers considerable trouble as it seems to be deteriorating. Of late years we have been forced to graft it on the Manetti. Its splendid crimson color and its productiveness are its strong points. Until this year I have been unable to equal it in this respect, but now

the General McArthur and the Richmond promise to excel it on both points and on odour as well. The odour of the General McArthur is very sweet. The great productiveness of the Meteor will be realized when I state that one year the 1,400 plants in this house averaged 33 blooms each.

"One of the strongest points in favor of the McArthur and Richmond varieties is that they do not require as high a temperature by six or seven degrees as the Meteor, which needs a temperature of 65 degrees at night. The Richmond is being sent out this season for the first time. It heard it so highly spoken of last fall I visited the greenhouses of the originator, in Richmond, Indiana, especially to see it. We have grown the General McArthur all season and find it a favorite variety, its fragrance adding to its popularity."

On coming out of the first two greenhouses the representative of The Horticulturist became interested watching one of Mr. Dunlop's employes grafting Bride and Bridesmaid roses. "My method," said Mr. Dunlop, "is to use Manetti stocks, which are imported from England in the fall. These are potted and kept in a cool greenhouse till after New Year's. Some of them are then brought into a warmer house to start growth. The scions are splice grafted on the Manetti and placed in a close grafting frame. For the first 10 days this frame is kept perfectly tight at an average temperature of 80 degrees. For the four following days about half an inch of air is admitted. For the next two days an inch of air is given, and then four inches of air is allowed in for two days. At the end of 16 days the plants are given full ventilation and they are ready to be moved at the end of 18 days. This method greatly increases the strength of the plants." Some plants, pointed out by Mr. Dunlop, which had been treated in this way, bore evidence to the truth of the statement.

"One of the greatest stumbling blocks many growers encounter," continued Mr. Dunlop, "is to retain the original foliage of the American Beauty rose after the process of rooting till growth starts. I have found that it is best not to vary the temperature during the four weeks the cuttings are in the sand. The cuttings are even potted in the propagating house. They are kept in the house where the grafting frames are until growth starts, after which little difficulty is experienced with them."

The next greenhouses visited were seven in one, there being no partitions between them. These greenhouses, which were 240 feet long, presented a lovely scene, as they were full of rose plants, many of which were in bloom. The first two houses were devoted to American Beauty roses and the remainder to

Monster Combined Greenhouses Where Mr. Dunlop Grows Some of His Roses

such varieties as Bride, Bridesmaid and Franz Deegan. The benches were of modern construction, being about a foot high and made of cement, brick and tile. "The strong points of these benches," said Mr. Dunlop, "are their durability, their free drainage, and that the soil can be kept at a more even temperature.

"I like this method of throwing several houses into one, as when the gutters are high the light goes right through the houses and none of the plants are shaded. This year I am taking down four old houses and converting them into three large ones, in which I will use the skeleton construction."

Mr. Dunlop Among His American Beauty Roses

POPULAR VARIETIES.

On being asked how many varieties of roses he was growing Mr. Dunlop replied, "I am growing 10 varieties and find the white, pink and red are the most popular in the order given. There are none better than Bride and Bridesmaid in the white and pink. Franz Deegan has supplanted Perle in the yellow. The Richmond, I believe, will excel all others in the red."

Two propagating houses are used exclusively for carnations. At the time of the visit these were being used for chrysanthemums and violets. During their season Mr. Dunlop propagated about 150,000 carnation cuttings. The cuttings are kept in for about five weeks and are kept very cool, being given but little bottom heat in the belief that plants grown in this way are more sturdy and have a better constitution. The bench bottoms are composed of slate and soft brick and about two inches of sand, which gives a better temperature and more even moisture, as the soil does not dry out so quickly as it otherwise might.

The two adjoining houses are used for propagating roses and the sides for lily of the valley. The lillies of the valley are grown from pips imported from Germany between November and January. On arrival they are placed in cold storage and are brought out as needed. Many of the plants in these greenhouses were beauties, having made a splendid growth. Radium and Multibelle are two of the best varieties Mr. Dunlop grows.

Five greenhouses were visited in which asparagus plumoses was growing, some of the plants in one of the greenhouses were 14 feet high. In five other greenhouses, 140 feet long, were growing Bride, Bridesmaid and Kaizerin roses.

WHERE CARNATIONS BLOOMED.

A most enjoyable part of the visit was spent in the greenhouses devoted to carnations, seven of which are 240 feet long by 18 to 21 feet wide. "In white carnations," said Mr. Dunlop, "Lady Bountiful, White Lawson and The Belle are among the best. Glacier is an old standby which is still good. The Harlowarden is the best of the deep shades.

"In the bright reds Estelle, Adonis, Flamingo and Cardinal are of about equal merit. The last is a new variety this year which promises well. Among the dark pinks there is nothing to beat Mrs. T. W. Lawson. The Mrs. Lawson is one of the best varieties ever originated. It is a very free bloomer, of large size, and has a good stem. It has all the points of a perfect flower."

The plants in two of the carnation houses had never been in the field, and the plants, in consequence, have fine long stems early in the season. In one of the houses the carnations had been taken out and 50,000 young plants put in instead which will be left in until the last of April or first of May. When the plants are young they are pinched back to induce them to make side breaks and develop into bushy plants.

THE CUT BLOOM CELLAR.

A most interesting feature of this big establishment is the cut bloom cellar, which is eight feet deep. The walls are 18 inches thick and made of hollow brick with four inch spaces. There is a nine-inch arch roof with three wooden roofs over that with four inch spaces between each roof. There are double windows, which are double glazed, to let in the light and exclude the atmosphere. The cellar never has any frost or artificial heat. Cut flowers look better 48 hours after being placed in the cellar than when they are cut. They are shipped to such distant points as Winnipeg and Halifax and reach their destinations in excellent condition.

In addition to growing flowers Mr. Dunlop conducts two retail flower shops in Toronto, which do a big business. His ability as a florist has often been recognized by his brother florists who have at different times elected him to such important offices as president of the Canadian Horticultural Association, Toronto Gardeners' and Florists' Society, vice-president of the American Carnation Society, and many others. Any person interested in the growing of flowers will find a visit to Mr. Dunlop's greenhouses both pleasant and profitable.

One of the Greenhouses in Which the Mrs. T. W. Lawson Carnation Is Grown

ANOTHER HANDY GARDEN TOOL

WILLIAM WELSH, KINCARDINE, ONT.

THE description which appeared in the March issue of The Horticulturist of Mr. R. B. Whyte's flower garden in Ottawa was an instructive one for amateur flower growers. I was particularly interested in Mr. Whyte's description of the two handy garden tools he uses in weeding his garden. A number of years ago I realized the need for some such implement as those used by Mr. Whyte, as I found it was difficult to keep my garden free from weeds either by pulling them by hand or by using a hand hoe. This led me to experiment, with the result that I finally devised an implement which has been of great assistance to me and with which I find it possible to weed my garden quickly and effectively and without stooping or soiling my hands, two things to which so many people object.

The first implement I made was rather a crude affair, as the blade I shaped myself, but since then I have been able to improve it considerably. It may be used by pulling or pushing for stirring the surface of the soil. The trouble I found with a hoe was the continued lifting and hacking. So satisfactory have the results been with the use of this implement that I have introduced it to my friends, who have been delighted with its use. Both amateur and professional florists who have used it have informed me that it has been of great assistance to them in not only weeding their orchards and gardens, but in stirring the soil as well.

Death on the Weeds

This illusttration shows how Mr. Welsh, the president of the Kincardine Horticultural Society, uses his weeder.

HYBRIDIZING CARNATIONS*

GEORGE HOLLIS, BRACONDALE, ONT.

I GROW quite a few carnations and chrysanthemum seedlings every year and so far have met with some success. I hope to get higher up the ladder before I give up and should like to see more growers take up this work. In Canada we should be able to do something to hold up our end and bring out a variety that will be a credit. Raisers of seedlings must not be disappointed if they do not get anything good the first, the second or even the third year. After that they should have some success.

The plants raised the first year should be the foundation of the seedling stock. The color of the flowers does not matter much, provided the plants are strong, with thick flower stems and an upright growth, the calyx never bursting, and the flowers not very full in petals. Select the plants you mean to seed, and take the pollen from some healthy strong growing plant, never wek, puny ones. Nothing is gained by getitng new ones to work with, unless some new variety should give you some advantage in vigor, size and bloom. With good judgment and selection it is better to work with seedlings.

The dull days of winter are not so easy to cross the flowers as the warm bright weather of early summer. Many of the varieties have no pollen till warm weather. Having selected the blooms you wish to

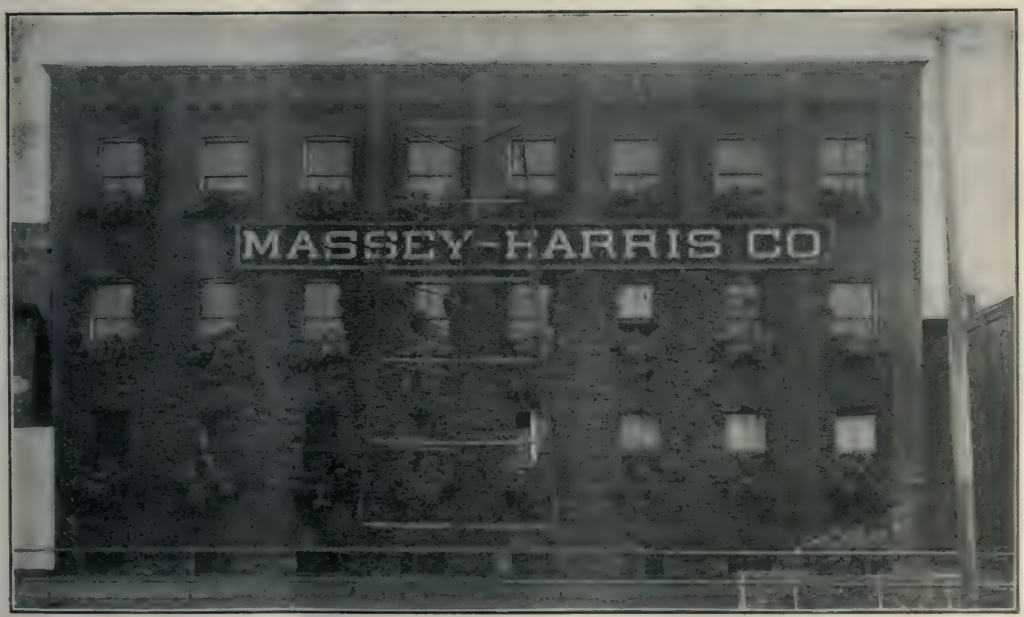
* Paper read before Toronto Gardeners' and Florists' Association, March 21, 1905.

seed, take out the pollen anthers before they burst. The petals should not be cut off, and two days aftetr the pollen can be put on the pistil, bringing it to the flower with a pair of small forceps. Do this about noon, when the sun is shining, and if successful the blooms will close by the next day. If not successful repeat. After a few days pull the dead petals out.

Some varieties will not seed, but the pollen from them, in nearly every case, is wonderfully effective. Label your crosses and keep an eye on them. When the seed pods show signs of bursting gather and put each in separate papers, and keep them in a tin box in a cool dry place, till sowing time, which I think is best in February. The seedling can be grown on in pots or flats and planted outside in May. Do not stop the seedlings. Let them flower, and do not be afraid to pull out the bad flowers or the poor growers. After planting outside you will have more to pull out. Out of 500 you may end with 12 or less.

Cross them, sow, select and house as before, and propagate any you think are worth saving. They may be good as seedlings, but when grown from cuttings they may be far from good. Carnations, as grown for cut flowers, have practically no rest. A cutting cannot, in any sense, be called a new plant, as it is only a branch, so to speak, of the new plant, and if ever propagated or badly treated a good kind may soon be ruined. Seedlings of extreme vigor are what are wanted. Propagated and grown with care, when put on the market, they should keep in health and vigor for many years.

The last two years I have lost nearly all my seedlings through their being flooded when planted outside, and this year I have to work up a new stock. I am using some singles, which I hope will give me some vigorous plants to seed next year. Some growers think the use of singles is going backwards, but in my opinion that is not the case. There are some grand varieties sent out this year, but there is room for something better.



A Beautiful Object Lesson For Large Manufacturing Companies

The unattractiveness of many commercial sections of cities has been greatly relieved of late years by the planting of vines and window boxes. During the summer this Toronto building is always greatly admired.

GROWING EARLY TOMATOES

J. L. HILBORN, LEAMINGTON, ONT.

FOR the best success in growing early tomatoes for market it is necessary to have a greenhouse in which to grow the plants. There are about 30 of these in the vicinity of Leamington, which are used almost entirely for the growing of tomato plants.

We start the seeds in flat boxes made one by two feet and four or five inches deep. We sow the seeds the first or second week in Marsh. When the plants have developed four to six rough leaves they are pricked out into other flats in rows two or three inches apart each way. They are grown here until they begin to crowd each other, when they are again transplanted into flats which are divided into spaces about four inches square by using veneer partitions. The plants are grown in these until they again begin to crowd, when they are transplanted and given a space six inches each, which gives six plants to a tray where the trays are used.

Some growers use other forms of trays and some use square veneer boxes 5 x 5 or 6 x 6, but all use some form of box so that they can aransplant into the field without disturbing the roots. We set the plants four by six feet and cultivate and hoe often until the fruits begin to ripen.

Last season we trimmed about 3,000 plants, allowing but two stems to grow. These were tied to stakes and suckers were kept off. Where this was practised a much finer quality of fruit was obtained, but it was hardly so early in ripening and the yield was lighter. The most serious hindrance to the success of this industry that we have to contend with is the great quantity of cheap imported stock that is found on the market when ours are being harvested.

VARIETIES OF VEGETABLES FOR A HOME GARDEN

PROF. H. L. HUTT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THE following varieties of vegetables should give excellent satisfaction when grown in the home garden:

Beans.—Summer, Golden Wax; autumn, Burpee's Bush Lima; winter, Navy. Sow when danger of spring frost is past.

Beets.—Globe, Egyptian Turnip; long, Long Smooth Blood. Sow as soon as ground is fit to work. Thin when small to three inches apart and take out every other one as soon as they are large enough to use.

Carrots.—Chantenay, Scarlet Nantes. Sow early and thin the same as beets.

Cabbage.—Early, Winningstadt; late, Flat Dutch, Savoy; red, Mammoth Rock. Sow seed of early variety in hot-bed about middle of Marsh and transplant to open ground about end of April. Sow seed of late varieties in the open ground about end of May, and transplant about July 1.

Cauliflower.—Extra Early Erfurt, Early Snowball. Treat the same as cabbage.

Celery.—Early, White Plume; medium, Paris Golden Yellow; late, Giant Pascal. Sow seed in seed box or hot-bed about first of May. Prick out into flats or cold frame, when an inch high, and transplant into trenches four or five feet apart about July 1.

Corn.—Early, White Cory; medium, Metropolitan; late, Country Gentleman, Stowell's Evergreen. Sow about May 1, and if plants are injured by cold or frost sow again about May 24.

Citron.—Colorado Preserving. Sow in hills about eight feet apart when danger of frost is over.

Cucumber.—White Spine, for slicing; Cool and Crisp, for pickling and slicing. Sow in hills about four feet apart when danger of frost is over.

Egg Plant.—New York Improved. Sow seed in seed box or hot-bed about middle of April, and transplant in the open when danger of frost is past.

Kohl Rabi.—Early Purple Vienna. Sow seed early for summer use and again about middle of June for winter use.

Lettuce.—Toronto Gem, California Cream Butter. Sow seed as early as possible, and at intervals of a month for succession. Thin plants to six or eight inches apart for good heads.

Muskmelon.—Rocky Ford, or Emerald Gem; Montreal Market. Sow seed in well prepared hills when danger of frost is past.

Onions.—Yellow Danvers, Prizetaker, Red Wethersfield. Sow seed as early as possible. The thinnings may be used as green onions.

Parsnips.—Hollow Crown. Sow as early as possible and thin to six inches apart in row. Leave part of the crop in the ground over winter for spring use.

Peas.—Early, Steel Briggs' Extra Early; medium, Gradus; late, Champion of England. Sow early kinds as early as possible and others a couple of weeks later.

Potatoes.—Early, Early Ohio; late, Empire State. Keep potatoes for planting in a warm room in the light for three weeks before planting. Plant a few for early use as soon as the ground is fit to work, and follow with others when danger of frost is past. Plant late varieties about May 24.

Pumpkin.—Sugar. Plant when danger of frost is past.

Radishes.—Early, Rosy Gem, French Breakfast; winter, Scarlet China. Sow early varieties as early as possible, and at intervals of two weeks for succession. Sow winter varieties in summer after crop of early peas.

Salsify.—Long White. Sow as early as possible and thin to four inches apart in the row. Part of the crop may be left in the ground over winter for spring use.

Spinach.—Victoria. Sow as early as possible, and at intervals of a month if succession is desired.

Squash.—Summer, Crookneck, White Bush Scallop; winter, Hubbard. Do not plant until danger of spring frost is over. Bush varieties require about four feet of space between hills. Hubbard should have at least eight feet.

Tomatoes.—Early, Spark's Earliana, Dominion Day, Mayflower. Sow seed in seed box or hot-bed about the middle of April. Transplant in the open when danger of frost is past.

Turnips.—Golden Ball, Hartley's Bronze Top. Sow early for summer use and about June 20 for winter use.

Vegetable Marrow.—Long White Bush. Plant when danger of frost is past.

Watermelon.—Hungarian Honey, Cole's Early. Plant when danger of frost is past in well prepared hills eight feet apart.

If you care to start a hot-bed, or a cold frame for flowers, all right. If not, scatter the seeds thinly on a bare piece of ground, even if the frost is not all out, and when the plants have four or five leaves on them they can be readily transplanted to beds. Take up a small clump of earth with each plant, and do not disturb the roots. Poppies bloom very early, asters later, so that if you plant poppies in one row in the bed and asters a foot apart behind them, when the asters are ready to bloom the poppies will be gone and you can weed them out.—N. S. Dunlop, Montreal, Que.

A good garden requires good soil. Sandy land is the earliest. It can be made productive by the addition of plant food. Commercial fertilizers are good in their place, but they do not make humus, which comes from decayed vegetable or animal matter.

Onion Growing For Profit

JOSEPH W. RUSH, HUMBER BAY, ONT.

What is an average profit per acre growing onions, all expenses being deducted? Is it difficult to dispose of the crop and how much per bushel do onions generally bring? Have you tried the transplanting method introduced by T. Grenier in his book, The New Onion Culture? Is it advisable to keep onions until spring? What kind of soil is best and what onions are the most profitable? How many bushels can be grown from an acre?—(A. R. Douglas, Ailsa Craig, Ont.

There is certainly money in onion growing if properly managed. Try it and manage as well as you can. The returns from an acre of onions may range from $20 less than nothing up to $300 to the good. There is always a sale for onions at market prices which range from 50 cents to $1 per bushel for well dried onions. A good plan for early onions is to sell them in bunches, six onions tied in a bunch. The onions should be three to five inches in diameter. They sell at 50 cents per dozen bunches in Toronto market.

Sell the onions when they are ready and you need the money. My soil includes sand, heavy clay, black muck, clay loam, gravelly clay and some very strong land. The Yellow Danver onion I find the most profitable and I always use a well known Toronto firm's seeds. Sow five to six pounds per acre. Four hundred bushels is a fair crop, 600 bushels is a good one. There is lots of work in onion growing, and you should find a profit as well as work.

THE BEST SOIL.

The soil best suited for onions is a dark, sandy loam that retains moisture. Work deep when preparing the ground for the reception of the seed. Use land that has been worked for a root crop the previous year. Use 30 to 40 tons of well rotted barn manure per acre and plow it under four to six inches. The manure should be covered by not less than four inches of soil.

Harrow thoroughly so that the manure is thoroughly incorporated with the soil. After harrowing with the ordinary harrow the surface should be further worked with the arm or disk harrow, so that it is well pulverized to the depth of four inches. Then put on the smoothing board and go over the ground two or three times until you are sure the soil is ready for the seed. When ready make a straight mark across the land to be sown, have your seed in the drilling machine and set the marker to suit. If the crop is to be worked by hand 15 inches will be about right, and if by horse 18 to 20 inches.

Run the drill at a good fast walk, as the seed runs truer than when run at a low speed. Have the heaviest man on the farm follow the drill, treading every inch of the rows thoroughly to insure a good catch. There is no other crop where the adage, "A Stitch in Time," is so applicable as in the onion crop; therefore, just as soon as the line can be seen, which will be about 10 days after sowing, apply the double wheel hoe between the rows and keep it going once a week all season. Do not thin the onions, as they will ripen better if allowed to crowd each other.

Experiment in Pruning Tomatoes

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

AN experiment in pruning tomatoes was tried last season with gratifying sucsults. When the plants in the hot-beds had six strong leaves developed, which was on May 23, the tops were nipped off and the plants given more room, being placed five and a half inches apart in the frame. The object of pinching off the top of the plant was to cause new shoots to develop at the axils of the leaves in order to have six branches bearing early tomatoes instead of the one cluster usually found on the top of the plant. These were planted out June 6, alongside other plants unpruned. On June 22 half the pruned plants were again

pruned, all laterals being taken out and the six main branches only left. The other plants were left to grow at will, and it was found that they produced the most ripe fruit, though not the largest early crop.

This system of pruning is very promising.. The further advanced the axillary shoots are when the plants are set out the larger the early crop is likely to be. In the experiment the plants were not started early enough to get the best results. When the first fruit was ripe on the unpruned Sparks' Earliana, July 29, there was very little ripe on that date. The experiment was suggested by Mr. J. S. Littooy, Everett, Washington Territory, who has been pruning tomatoes in this way for some time in Washington with gratifying results, where they have difficulty in ripening tomatoes.

Two varieties were under test, the Sparks' Earliana, one of the best, if not the best, early variety, and the Matchless, a main crop sort. I would advise all market gardeners to give this system a trial this year.

Name of Variety.	Date of First Ripe Fruit.	Ripe Fruit First Three Pickings.	Total Yield of Ripe Fruit.	
Sparks' Earliana:		Lbs.	Lbs.	Ozs.
Unpruned	July 29	9	84	10
Pruned once . .	Aug. 13	6	127	12
Pruned twice ...	Aug. 12	18	132	12
Matchless:				
Unpruned	Aug. 4		29	
Pruned once	Aug. 29		73	8
Pruned twice ...	Aug. 29		62	

Better to Mix the Fertilizers

W. C. M'CALLA, ST. CATHARINES, ONT.

I GREW six acres of tomatoes last year, but the season was so unfavorable I was not able to see definite results from the different fertilizers tried. It rained so much at planting time that it took a week to get all the plants out, and a week's start gives a very considerable advantage. In a large field the soil is not uniform, and in a wet season particularly, it is not fair to compare the lower ground with higher. I am still satisfied, however, that for tomatoes, and for some other crops, it pays to use chemical fertilizers, and I should not like to be without a few sacks each season, even if I could get all the stable manure I wanted.

This fertilizer question is an important one. There is still prejudice against commercial fertilizers, largely, I believe, because of lack of knowledge. I have no record of definite, detailed results from the use of commercial fertilizers, although I have used them on a number of crops each year, and after watching their effect have gradually increased my purchases each season. I have no great knowledge of farm chemistry, but have read and studied the subject as I found time, and have attained some measure of success in the use of fertilizing chemicals. As a result I have about given up using ready-mixed fertilizers, finding it cheaper and better to buy the ingredients separately and to mix them as the land and crops seem to require.

Vegetable Notes

Too much nitrogen in the soil, or rather not enough phosphoric acid and potash for the amount of nitrogen will cause the first fruits of cucumbers or tomatoes to drop.—(W. W. Hilborn, Leamington, Ont.

The soil for growing celery can hardly be made too rich. Celery is a great consumer of nitrogen. Potash must be abundantly supplied to give strength for bleaching and keeping. It is one of the great secrets of success with this crop.

Maine is the champion potato state, with a yield of 200 bushels to the acre. New Hampshire is next with 145 bushels. New York is the lowest with 86 bushels. Iowa is the champion of the western states with 118 bushels. It is also the champion corn state.

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

OFFICIAL ORGAN

ONTARIO FRUIT GROWERS' ASSOCIATION.

THE POMOLOGICAL AND FRUIT GROWING SOCIETY OF THE PROVINCE OF QUEBEC.

PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATION.

ONTARIO VEGETABLE GROWERS' ASSOCIATION.

H. Bronson Cowan, Editor and Business Manager.

J. J. Bell, Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE CANADIAN HORTICULTURIST.

That Canadians, who are interested in the growing of fruit, flowers and vegetables, are prepared to support a Canadian publication which is devoted to their interests is proved by the rapid growth that has taken place in The Canadian Horticulturist. The great increase in the subscription and advertising patronage has made it possible to issue this number under a new cover and to enlarge the magazine from fifty-two to sixty pages. During March, handsome and enlarged offices were secured in the Manning Chambers, Toronto.

The best evidence of the increase in the support of the paper is afforded by its subscription lists and advertising pages. During the past few months two provincial fruit growers' associations have appointed The Horticulturist their official organ, and others intend to do so shortly. The number and value of the advertisements has been increasing by leaps and bounds. The February issue, 1905, carried more advertisements than any previous issue. The advertisements in the March issue showed an increase in value of eleven per cent. over the February issue. This month the advertisements in The Horticulturist have surpassed those in the March number by almost thirty per cent., and are worth as much as the total advertisements in the twelve issues of the magazine published during 1902. Can any other publication in Canada show a more rapid increase in the same length of time?

This increase will soon make it possible to considerably enlarge the paper and to strengthen all the departments. Many improvements are being planned which when carried out will make The Horticulturist a magazine of which Canadians may well feel proud. As such progress as has been made, is due to the assistance of our readers and advertisers, the management trusts it will continue to receive this support in the future as in the past. In the meantime a cordial welcome is extended to our readers, one and all, to visit us in our new home in the Manning Chambers, where lovers of horticulture are always assured of a warm welcome.

GOOD RESULTS SHOULD FOLLOW.

The announcement, by the Hon. Sydney Fisher, Minister of Agriculture, that in compliance with the requests of fruit growers he may arrange for the holding of a conference by representatives of the fruit interests in the different provinces, has been received with general satisfaction by fruit growers at large. Such a conference has long been needed. There are questions relating to the transportation and marketing of fruit, uniform packages, the Fruit Marks Act, etc., which are pressing for a solution and these can best be dealt with by a conference such as is proposed. Important results will follow the meetings.

The Minister of Agriculture is, also, to be congratulated on the passage of his bill making the 10 x 11 x 22-inch box the standard for Canada. This size is the one most generally acceptable. The adoption of this box will bring about several improvements connected with the shipment of a certain class of Canadian fruit.

OUR CORELESS APPLE ARTICLE.

In this issue Prof. John Craig, the well known authority on horticultural subjects, gets after the people who are interested in the Spencer Coreless Apple, as well as Mr. Sampson Morgan, for writing the article on this apple which appeared in our last issue, and The Horticulturist for publishing it. By implying that The Horticulturist lent itself to "foisting on a gullible public" something which "may prove a fake," Prof. Craig takes a stand which is not justified. Before publishing the article in question The Horticulturist considered the matter carefully. While realizing many of the weak points in the article, which are pointed out by Prof. Craig, our intention was to draw

editorial attention to them in this issue. This would have been done in the March number but for lack of space and the late date on which the article was received.

It is well known that seedless apples have frequently been produced. Proof of this is furnished in the article in this issue by Mr. W. T. Macoun. Mr. Sampson Morgan is a well known English writer on horticultural subjects, articles by him appearing frequently in some of the most conservative English horticultural publications. A contribution on this subject by Mr. Morgan, which appeared recently in The Nineteenth Century and After attracted a great deal of attention. When Mr. Morgan stated definitely that "over 2,500 trees of the Spencer apple are in hand" The Horticulturist concluded he must have proof for this statement, and, therefore, felt free to publish it although holding Mr. Morgan responsible for its truth. Mr. Morgan has been written to and will have to make his own defense. Should it be true that 2,500 of these trees exist there is no reason to doubt that there will soon be a large increase in the production of these apples. The excitement these apples created in Great Britain and the large sums they realized when sold by auction were items of interest The Horticulturist felt perfectly justified in presenting to its readers.

The Horticulturist has no intention of misleading its readers on this or any other subject. For this reason we do not hesitate to publish Prof. Craig's letter in full. It is published with pleasure because we understand from other sources that Prof. Craig has excellent reason for speaking as he has. The statement has been made to The Horticulturist that a company is being formed in the United States with the intention of selling nursery stock of so called coreless apple trees to the public at exorbitant prices. If this is the case the sooner the warning to the public is sounded the better. While The Horticulturist intends to keep its readers informed on matters relating to seedless or coreless apples it will also use its best efforts to prevent their being misled by sharpers. It is now up to Mr. Sampson Morgan to explain his position.

THE FRUIT DIVISION.

Until he has produced stronger reasons than those given in the House of Commons, Hon. Sydney Fisher will find it impossible to convince fruit growers of the necessity which led him to place the chief of the fruit division under the direction of the Dairy Commissioner. In taking such action the Minister of Agriculture has given fruit growers reason to believe that he does not consider it necessary to consult their views in affairs connected with his department, no matter how interested in them they may be. More than that; he has shown fruit growers that he does not intend to pay any heed to their wishes as expressed through their provincial fruit growers' associations, through papers representing their interests and by means of private letters, many of which he has received.

Hon. Mr. Fisher has not claimed that the Dairy Commissioner (who is a recognized authority on dairy matters) is better informed in regard to the fruit interests than is the chief of the fruit division. Such a claim would be ridiculous. Why then should the latter be placed under the direction of the former? This, however, is not a question of the fitness of these two men for the work. There is a principle at stake which demands recognition, and that is that the fruit industry is of sufficient importance to require a head who shall not occupy a minor position to the head of any other branch of the department of agriculture. As the Hon. Mr. Fisher does not recognize this fact it means that the fruit growers of Canada must produce the proof and that is what they intend to do.

OUR TEN DOLLAR BONUS.

The successful winner for March of the $10 offered by The Horticulturist each month to the reader who buys goods to the greatest value from the advertisers in each issue was Mr. Lewis Miles, who purchased trees and vines to the value of $126.25 from The Belleville Nurseries, of Belleville. Among those who applied for the bonus was Mr. G. H. Mills, of Toronto, who secured goods to the value of $87.50 from the Steele, Briggs Seed Co., Limited, of Toronto. As a reward The Horticulturist is sending Mr. Mills a handsome premium.

Owing to the large number of applications that are received for this monthly bonus it has been decided to make a change in the method of its distribution starting with this month's issue. In future, instead of giving one prize of $10, this sum will be divided into six prizes, one of $5 and five of one dollar each. The largest sum will be given to the reader whose purchases aggregate the most, and the remaining five prizes to the applicants in the order of the value of their purchases. Should there be more than six applicants those who do not receive money prizes will be sent handsome premiums. A notice concerning this offer appears in our advertising columns.

It is understood that City Park Commissioner Chambers, of Toronto, purposes making a change in the management of the Allan Gardens. Such action will meet with the approval of many who have felt for a long time the injustice of one man being paid for work another man was doing. The Allan Gardens, while under the control of the city of Toronto, might almost be called a provincial or Canadian institution, as they are visited by lovers of flowers from all parts of Canada. It is only justice that the man responsible for the splendid appearance of the gardens and grounds should receive full credit for his work. It is time, also, that Toronto had new conservatories. They are needed and should be built.

THE VEGETABLE GROWERS HAVE ORGANIZED

The vegetable growers of Ontario have organized and formed the Vegetable Growers' Association of Ontario. Organization was completed at a representative meeting held in Toronto March 25. Those present included Messrs. W. C. Emory, Aldershot; E. J. Mahoney, Hamilton; W. C. McCalla, St. Catharines; A. McMeans, Brantford; J. Terrill, Picton; W. Carter, Dovercourt; Joseph Rush, F. F. Reeves, Humber Bay; John McKay, Doncaster; George Syme, jr., Carlton West; R. Lankin, Toronto; J. W. Hyatt, West Lake, Ont.; H. D. Anderson, Dresden; John F. Atkin, Sarnia; Mr. Porter, York; P. W. Hodgetts, secretario Ontario Fruit Growers' Association, and H. B. Cowan, of The Horticulturist.

Mr. G. A. Putnam, Supt. of Farmers' Institutes, addressed the meeting and offered to assist the vegetable growers of the province every way in his power. Speakers would be sent by the department to their meetings, and he was willing to assist in the work of organization.

A report of a sub-committee which had been at work drafting a constitution was presented by Mr. Cowan, and after careful consideration was adopted with one or two amendments. The preamble states:

"The object of the association shall be the advancement of the science and art of vegetable growing, in all its branches, by holding meetings for the discussion of questions relative thereto, and by collecting, arranging and disseminating useful information, and by such other means as may from time to time seem desirable."

Local associations may be formed in any part of Ontario and their membership fee shall be one dollar a year. Their annual meetings must be held during December of each year. Each local association has the right to appoint a director to the board of the provincial association and shall hold office for one year. Associations may be formed with ten members. The provincial association will pay the expenses of one director from each association having a membership of 25 or over, when attending meetings of the provincial board. Associations having a smaller membership than 25 may elect a director but must pay his expenses. Each director will have a vote on the provincial board for every 25 members in his local association. The directors will elect from among themselves a president, vice-president and secretary-treasurer.

Local associations will send the secretary of the provincial association fifty cents for each of their members, which will constitute the members of the local association's members of the provincial association, shall entitle them to free copies of the official organ of the association, to free copies of the report of the annual convention, and such other printed material as may be issued by the provincial association. The Canadian Horticulturist was appointed the official organ of the association. Individual growers not connected with local associations may join the provincial association by sending one dollar to the secretary of the provincial association.

OFFICERS ELECTED.

On motion those present at the meeting were elected provisional directors until the local associations can elect directors regularly at their annual meetings next December. Associations already in existence but not represented at the meeting will be allowed to elect provisional directors to the provincial board.

The election of officers resulted in Mr. W. C. Emory being selected as president; Mr. Jos. Rush as vice-president, and Mr. H. B. Cowan as secretary-treasurer. These officers were appointed a committee, with power to add to their numbers, to wait on the Hon. Nelson Monteith, to ask for a grant for the association; that the Provincial Fruit, Flower and Honey Show shall be extended to include vegetables, and that the experts at the agricultural college be asked to devote more attention to matters pertaining to the growing of vegetables. The meeting was an enthusiastic one. Those present dispersed feeling that the new association has possibilities for splendid work ahead of it. Copies of the constitution adopted may be had on application to The Canadian Horticulturist. An organizer may be placed on the road to form local associations.

COOPERATIVE WORK AMONG FRUIT GROWERS

P. W. HODGETTS, SEC'Y ONTARIO FRUIT GROWERS' ASSOCIATION.

A strong deputation representing the cooperative committee of the Ontario Fruit Growers' Association waited on the Hon. Nelson Monteith, Minister of Agriculture, early in March, to impress on him the necessity for assisting in every way the cooperative movement among the fruit growers. There were president Messrs. A. E. Sherrington, of Walkerton; Robt. Thompson, of St. Catharines; A. W. Peart, of Burlington; W. A. Ross, of Chatham; Mr. Johnson, of Forest; Elmer Lick, of Oshawa, together with President Alex. McNeill and the secretary. A strong statement as to the losses sustained by the fruit growers under the present system of selling the crop was presented to Mr. Monteith, together with a brief account from each of the cooperative associations represented, as to the benefits which had accrued to their members the past year when prices were low.

As an aid to the successful carrying on of this work in the future, it was suggested that the department might revise and extend the present "Act for the Incorporation of Cooperative Cold Storage Companies" so as to include cooperative packing companies. This extension would also assist financially in the purchase, erection and equipment of suitable buildings for storage or packing purposes to the extent of one-fifth of such cost.

Two other suggestions were made, one asking that a number of power sprayers be operated this year throughout the province;

the other that expert packers be sent this fall to the various districts to teach the Ontario packers the proper methods of grading and packing fruit in either boxes or barrels.

Mr. Monteith expressed himself as being much impressed with the necessity for such a line of work among the farmers and promised to do all in his power along the lines suggested.

A STANDARD APPLE BOX ADOPTED

The bill promoted by Hon. Sydney Fisher, providing for a uniform sized apple box, which has passed its third reading in the House of Commons, meets the views generally of fruit growers and exporters. The standard size provided for is 10 x 11 x 22 inches, inside measure, or 2,200 cubic inches. It holds one bushel and is equivalent to one-third of a barrel.

Mr. David Henderson, M. P., put in a plea for a box 9 x 12 x 18 inches, one quarter of a barrel, which is the size used in the county of Halton, which he represents. Mr. Claude Macdonell presented the views of some Toronto shippers, favoring the size proposed for shipments to Great Britain, but smaller sizes to South Africa, France, Germany and other countries where different sizes are preferred, but the uniform size was adopted. The act will not come into force till June, 1906, so that this year's trade will not be affected.

The Fruit Growers' Associations of Ontario, Quebec, Nova Scotia and British Columbia passed resolutions in favor of a uniform box of the size which has been incorporated in the bill.

That the fruit growers are in favor of a standard box will be seen by the following expressions of opinion, a few of many given to The Horticulturist:

It is a step in the right direction to have a legal box, for we will be able to get sale quotations based on the legal box and it will give us a more intelligent view of market situations. —(Harold Jones, Maitland, Ont.

It is a mistake to have different sizes in boxes. In the past we have not known where we were at. The size adopted is the right one. —(S. M. Culp, Beamsville, Ont.

I approve of Hon. Sydney Fisher's resolution respecting apple boxes. There ought to be some standard size and the boxes should be of good timber, well seasoned.—(R. A. Thomas, Barrie, Ont.

A standard size for apple boxes is all right. The boxes should be of No. 1 timber. A box shown at the Toronto exhibition had sides only half an inch thick, which is too thin for exporting. A square box of the same size would be stronger and better. However, I prefer the barrel to the box.—(Rd. Veale, Mount Brydges, Ont.

A Series of Instructive Meetings

The Niagara Peninsula United Fruit Growers' Association strengthened itself among the fruit growers of the Niagara district as a result of the series of meetings under its auspices during the second week of March. The meetings were held at Stoney Creek, Beamsville, Jordan Station, Queenston and St. Catharines. Two meetings were held each day, and the attendance and interest were well sustained. Mr. C. M. Honsberger, president, and Mr. C. E. Fisher, secretary, made the necessary arrangements. The subjects specified on the program were San Jose scale work, diseases of the grape, and cooperation and organization among fruit growers. In addition to well known local fruit growers, such as Messrs. W. H. Bunting, E. D. Smith, A. H. Pettit, Erland Lee, S. H. Rittenhouse, W. C. McCalla, L. Woolverton, Joseph Tweddle, R Thompson, H. Griffith, S. M. Culp, W. H. Lee, F. A. Goring, F. G. Stewart, Rev. W. J. Andrews, Isaac Usher, Wm. Armstrong, Chas. Lowrey and W. M. Hendershot, two outside speakers, Prof. Lochhead, of Guelph, and Mr. W. T. Macoun, of Ottawa, divided the meetings, dealing chiefly with diseases of the grape.

Mr. A. N. Brown, an extensive and experienced fruit grower of Wyoming, Delaware, was present at the meetings and spoke twice daily, his addresses being full of interest and instruction. He is a many-sided man of pleasing address, and won golden opinions from those with whom he came in contact.

Arrangements have been made by the association to supply members with spraying materials at wholesale rates. There can be no excuse for neglect in the matter of spraying this season.

The Deseronto Workers.—The season of 1904 was one of the most successful in the history of the Deseronto Horticultural Society. The annual flower show given by this society is becoming one of the events of the year, and the last show held was the largest and best ever given. The competition in classes for best kept lawns and grounds was keen, and great interest aroused. Prospects for the coming season are good, as the members are anxious to make an even better record than the past year. Mr. D. McClew was re-elected president and Mr. R. W. Lloyd as secretary.

The premiums distributed this year by the Durham Horticultural Society will consist of fruit trees, evergreens, flowering shrubs, gladioli and geraniums. The members of this society are taking more interest in their surroundings than heretofore, and much rivalry is expected in competing for prizes for the best kept grounds and lawns of the members. The membership is constantly increasing and the society is a power for good in this community.—(Chris. Firth, Sec'y.

A Dominion Convention

A deputation of fruit growers waited on the Hon. Sydney Fisher to ask him to call a Dominion convention for the purpose of discussing various matters connected with the fruit growing industry, also to urge him to take steps to have express rates placed under the control of the Railway Commission. The deputation was an influential one and placed its views before the minister with much force.

The following were mentioned as some of the subjects which might be discussed at the convention :

Statistics and fruit crop reports.
Transportation.
Uniform packages.
Markets and marketing, including the regulation of the commission business, and all questions pertaining to interprovincial trade, also the export trade.
Adulteration of fruit products.
Regulation of nurseries and tree agents.
Amendments to the fruit marks act.
Suggestions looking to the increasing usefulness of the Dominion experimental farms and provincial experiment stations and orchards.

The deputation met with a sympathetic reception and Mr. Fisher expressed himself favorable to holding the convention. It is expected that representative fruit growers, representatives of the transportation companies, local and foreign buyers, and others more or less directly connected with the industry will be present, and that an exhibition of fruit, representative of the provinces, will be held at the same time.

Items of Interest

A very successful banquet was held by the Market Gardeners' Protective Association at Toronto March 1. The principal speakers were Hon. N. Monteith, Minister of Agriculture ; Mr. J. W. St. John, M. P.P., and Messrs. R. C. Steele, W. Rennie, J. A. Simmers and H. B. Cowan. The affair passed off very pleasantly.

A number of fruit growers' cooperative associations have been formed in Ontario as the result of a series of fruit institute meetings. Among those associations are the Bruce Fruit Growers' Association, Thedford Association, Forest Fruit Growing and Forwarding Association, Georgian Bay Fruit Growers' Association, Lake Huron Fruit Growers Association, and Allenford Fruit Growers Association.

At a meeting of the British Columbia Central Farmers' Institute, held at Victoria February 28 to March 2, a resolution was passed unanimously endorsing the action of the Provincial Board of Horticulture in refusing admission to the province of fruit and fruit trees infected with fungus disease and infested with insect pests.

An influential deputation, introduced by Hon. J. S. Hendrie, M. P. P., waited on Hon. Nelson Monteith, Minister of Agriculture, recently, to urge the holding of the annual Fruit, Flower and Honey Show at Hamilton. A deputation is being formed in Toronto to wait on the minister and ask that the show shall be continued in Toronto.

New Advertizers

The following advertisements appear in this issue of The Canadian Horticulturist for the first time :

Sinclair, D. J., Toronto, Ont.
MacLean Publishing Co., Toronto, Ont.
Welsh, W., Kincardine, Ont.
Kastings, W., Buffalo, N. Y.
Niagara Gas Sprayer, Buffalo, N. Y.
Smith, J. B., Strachan ave., Toronto, Ont.
Stone & Wellington, Toronto, Ont.
Blackie Bros., Halifax, N. S.
Massey, Harris & Co., Toronto, Ont.
Renfrew Nurseries, Renfrew, Ont.
McMillan Fur and Wool Co., Minneapolis, Minn.
Indianapolis Nurseries, Indianapolis, Ind.
Banfield, H. G., Woodstock. Ont.
Breckon, T. W., Merton, Ont.
United Typewriter Co., Limited, Toronto.
Vanduzer, C. W., Grimsby, Ont.
Gilchrist, A., Toronto Junction.

Advertise in The Canadian Horticulturist.

Our Fully Descriptive Catalogue Entitled

Canadian Plants for Canadian People

is now out. Drop us a card for a copy.

The Webster Floral Company, Limited, Hamilton, Ont.

"THE LEADING CANADIAN FLORISTS"

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.
See Notice in Advertising Columns.

Trade With Grocers

The keener the demand, the better market. This is a truism that is not amiss to repeat once in a while. Fruit growers as a general thing ship to jobbers, who in turn sell to the retail fruit dealer or grocer. There are, however, many buyers among both jobbers and retailers who are anxious to get in touch with large shippers and who are ready to take good sized shipments regularly—ready to pay, too, a better price than the market for a dependable article. Some of these buyers are in Eastern Canada and some are west. An excellent means of reaching them is by advertising in a newspaper which they consult for market quotations, etc. Such a newspaper is The Canadian Grocer, published in Montreal, Toronto and Winnipeg. The Canadian Grocer enjoys the name of being the best news medium of the green fruit trade, as this relates to green fruit as merchandise.

Our Reputation Is Extending

"The reputation of Canadian fruit is apparently extending to all parts of the world," said Mr. Stone, of the firm of Morris & Wellington, whose nurseries are at Fonthill, while in conversation recently with The Horticulturist. "We have lately received an order from a party living at Kuanguing, China, for several hundred dollars' worth of fruit trees, including apples, pears, cherries, plums, peaches, apricots, ornamental stock and an assortment of small fruits and roses. The check paying for the consignment accompanied the order.

"It may be interesting to readers of The Horticulturist to note that the climate of Manchuria is not unlike that of the Niagara district, as it seldom goes lower than 10 below zero and as high as 100 degrees in summer. Our firm has previously shipped to such foreign points as Great Britain, France, Germany and Russia, but this shipment to China is the most foreign we have ever made, as well as being one of the best orders of the kind received from any foreign customer. The purchaser of this stock intends experimenting with these trees, and as splendid pears have been grown very successfully in Manchuria he is hoping to branch out extensively in the fruit line. The consignment was shipped by C. P. R. to Vancouver, where it will go straight to Shanghai, and thence forward to New Chwang, Manchuria."

The Value of a Tree

Trees are valuable from every standpoint. Railroads taking planted lands often pay $30 to $300 each for trees occupying the land, and there have been instances where $600 in cash was paid for trees standing on condemned property. It pays to plant trees—all kinds of trees—fruit, shade and ornamental, and when laying out parks, public and private grounds, windbreaks for farms, shelters and belts for landscape effects, there is one indispensable class, namely, the evergreens. They include

SMALL FRUIT PLANTS
GARDEN ROOTS

Gooseberries—Josselyn, Red Jacket, Downing Pearl and Houghton. $1 per doz., $6 per 100; $2.50 per doz., $10 per 100.

Currants, Black—Lees' Prolific, Champion, Naples. $1 per doz., $6 per 100.

Currants, Red—Moore's Ruby, Childs' Ruby, Red Cherry, Victoria, Varsailles. $1 per doz, $6 per 100.

Currants, White—White Grape. $1 per doz., $7 per 100; 50c per doz., $2 per 100.

Raspberries—Miller, Cuthbert, Japanese Mayberry. $1.50 per doz., $10 per 100.

Black Berries—Taylor's Prolific, Snyder. 50c per doz., $2 per 100.

Grape Vines—Worden, Moore's Early, Campbell's Early, Salem, Delaware, Eaton, etc. $1 50 per doz., $10 per 100.

Strawberries—Clyde, Williams, Splendid, Saunders, etc. 50c per 100, $4 per 1000.

Strawberry Raspberry—Tree Strawberry. $3 per 100, $20 per 1000.

Garden Roots—Asparagus, Palmetto, Conovers Colossal $1 per 100, $6 per 1000, 2 yrs. —Rhubarb (divided roots), Linnaeus, Victoria, $4 per 100, $30 per 1000—Sage Roots, 50c per doz., $4 per 100.

FOR FURTHER INFORMATION APPLY TO

WM. FLEMING

NURSERYMAN

P. O. Box 54 OWEN SOUND, ONT.

Money Given Free to People who buy Goods from Advertisers in this Issue.

some of the most useful and beautiful specimens known to horticulture—several varieties are valuable for reclaiming waste lands and some of them will thrive while less hardy trees cannot live.

At Dundee, Illinois, is the nursery of D. Hill, the evergreen specialist. For more than forty-two years Mr. Hill has turned his attention to this branch of horticulture, and in his Dundee nursery will be found all the practical varieties of these beautiful trees. His catalogue and bargain sheet will be forwarded free to any one requesting the same. Address D. Hill, Evergreen specialist, Dundee, Illinois.

Power Sprayers

The F. Hamilton Company, Limited, Hamilton, Ont., have secured the agency for Niagara Gas Sprayers, as well as the Wallace. They report that enquiries for power sprayers are coming very fast and expect a very large sale of these goods this coming month, and have already sold several.

Fruit Culture.—If you are interested in growing apples, pears, plums, grapes, strawberries, raspberries and other fruits it will pay you to send for the catalogue of Green's Nursery Co., Rochester, N. Y. It is a pamphlet of 72 pages, illustrating and describing fruit trees, plants and vines, also ornamental vines, plants and trees, and giving much information of interest to fruit growers. If requested a sample copy of Green's Fruit Magazine will also be sent. The address is Green's Nursery Co., Rochester, N. Y.

A Word to Farmers.—Farmers cannot be too particular in the quality of seeds sown. Some one has said "that a dollar saved is a dollar made," and while this may be true in many cases, yet a small saving in the price of seeds may mean hundreds of dollars lost in the crop, and very often the sowing of cheap seeds means no crop at all. The Rennie Co., of Toronto, have a reputation for good seeds. Every gardener and farmer should have their seed book.

Among the seed catalogues received by The Canadian Horticulturist is that of John A. Bruce & Co., the well known seed merchants of Hamilton, Ont. The catalogue contains a full list of the seeds, garden implements, spramotors, insecticides, poultry supplies and other garden requisites in which the firm deals. Those who patronize this old reliable firm will be well served.

The officers elected by Leamington Horticultural Society for the year are: President, A. McLachlan; secretary-treasurer, J. E. Johnson. A premium list is being arranged by a special committee appointed at the last meeting.

SEEDS THAT SUCCEED

"THE PIONEER SEED HOUSE OF CANADA."
ESTABLISHED 1850.

SPECIAL OFFER

No. 6. Floral. 1 pkt. each Alyssum, Balsam, Calliopsis, Eschscholtzia, Dianthus, Linum, Larkspur, Mignonette, Pansy, Petunia, Schizanthus and Zinnia—12 pkts. Retail value 60c, **for 25c, postpaid.**

No. 7. Floral. Bruce's Royal Nosegay Sweet Peas. Ten exquisite distinct varieties. Retail value 50c, **for 25c, postpaid.**

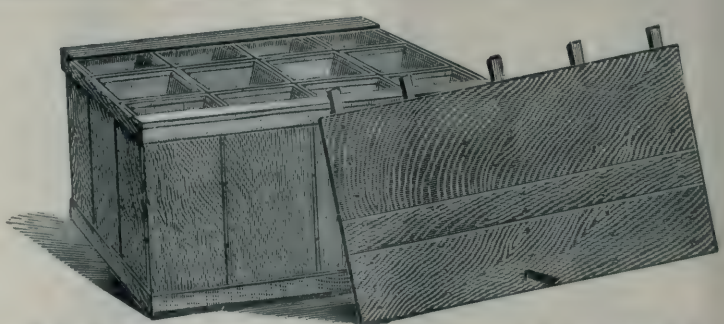
☞ Send for our handsome illustrated Catalogue of Seeds, and Everything for Farm and Garden. 88 pages. FREE.

JOHN A. BRUCE & CO., Seed Merchants
HAMILTON, - ONTARIO.

BASKETS

We are Headquarters for
All Kinds of Splint Baskets

FRUIT PACKAGES
A SPECIALTY



THE OAKVILLE BASKET CO., - OAKVILLE.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.
See Notice in Advertising Columns.

Why?═══Why?

The question is, Why should the farmers of Ontario send their boys and girls to the

Ontario Agricultural College?

and the answer is, Because the boys will receive a practical and helpful working knowledge of Scientific Agriculture, and because the girls will be given a first-class training in Household Science at the **MACDONALD INSTITUTE.**

Residence Accommodation is provided for both men and women.

Macdonald Hall, the girls' residence, is one of the best equipped buildings of its kind in Canada, and the boys' dormitories are comfortable and commodious.

COURSES

Courses for Boys, varying from two years to four years in length, commence on September 13th.

Courses for Girls, varying from three months to two years in length, commence on September 13th.

For full information regarding courses, terms, etc., write to **G. C. CREELMAN,** President Ontario Agricultural College, Guelph, Ont.

The Fonthill Nurseries — Canada's Greatest Nurseries

Over 800 Acres in Fruit and Ornamental Trees, Shrubs, Vines and Roses.

Send now for our catalogue of **New Specialties,** and 25c for our aluminum **Pocket Microscope,** just the thing to use in examining seeds, grains, plants and trees. Submit your list of wants for spring planting. **Liberal Inducements to Salesmen. Terms sent on application. See our reading notice page 163.**

STONE & WELLINGTON, - - - - TORONTO

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Officers of the Recently Formed Ontario Vegetable Growers' Association.

The best evidence that the Ontario Vegetable Growers' Association will be a success is afforded by the class of men who are its officers, a group of whom are shown. The gentleman standing in the foreground is Mr. W. A. Emory, of Aldershot, the first president of the association. Starting with the back row from the left those shown are Messrs. P. W. Hogetts, Toronto, Secretary Ontario Fruit Growers' Association; A. McMeans, Brantford; E. J. Mahoney, President of the Hamilton Tomato Growers' Association; W. C. McCalla, St. Catharines; George Syme, Jr, Carleton West; H. D. Anderson, Dresden; J. E. Terrill, Picton; W. Carter, Dovercourt; R. Lankin, Toronto. Those sitting in the front row, starting on the left, are Messrs. F. Reeves Humber Bay, Secretary Market Gardeners' Protective Association, Toronto; John McKay, Doncaster; John F. Atkin, Sarnia, and Joseph Rush, Humber Bay, the First Vice-President of the Association. The gentleman standing on the right of the front row is Mr. G. A. Putnam, Superintendent of Farmers Institutes.

The Canadian Horticulturist

MAY, 1905

VOLUME XXVIII NUMBER 5

NEW FORMS OF KEROSENE EMULSION

FRANK T. SHUTT AND W. T. MACOUN, C. E. F., OTTAWA.*

THE value of kerosene or coal oil for the destruction of scale insects as well as for all soft bodied and sucking forms has long been recognized. It cannot, however, be used without admixture or dilution, for its high price precludes its general application on dormant wood, and its injurious action on foliage forbids its employment during the summer season.

Kerosene will not mix with water, but special pumps have been devised for throwing an atomized spray of kerosene and water, provision being made for regulating the proportion of each constituent. These pumps, however, have not proved entirely satisfactory, the difficulty, apparently, being in obtaining a spray of uniform strength.

It is as an emulsion that kerosene has been found most valuable and most widely applicable. The satisfying agent almost universally used is a soap solution, though milk and certain other fluids with more or less viscosity have occasionally been employed. It may be held that whale oil soap and soft soap so used adds to the efficiency of the resulting emulsion as an insecticide, but it seems clear that for the most part the soap simply serves as the vehicle for distributing the kerosene (the real killing agent) in a very finely divided state.

This being the case, it seems desirable to learn if other emulsifying materials cannot be used which would not only lessen the expense of the spray, but at the same time obviate the necessity of the application of heat, without which the various soap emulsions cannot be satisfactorily made. A notable advance in this direction was made last year by Professor Close, of the Delaware Experiment Station, who has published the results of certain experiments which show that lime has the power of holding kerosene in suspension and forming a perfect emulsion. Prepared according to directions, it makes a fairly stable mixture, homogeneous, *i. e.*, of uniform strength throughout, one easy to spray, and which does not clog the nozzle. Briefly described, Prof. Close's directions are as follows: mix into a "thin sloppy mass" one pound of "Limoid" (an American preparation sold for the purpose) or slaked lime with one quart of kerosene. For a 10 per cent. emulsion, two gallons (imperial measure) are added and the whole emulsified by churning for, say, five minutes, best effected by means of a pump and a Bordeaux nozzle. No free kerosene, he states, will appear for several weeks, and though there may be a separation on standing into limey layers these will readily, if stirred, again produce the emulsion without deterioration. This emulsion, known as K-L mixture, may be used with ordinary Bordeaux (K-L-B),

*I beg to state that while I was associated with Mr. Shutt in the experiments described, to him is due full credit for the discovery of the value of flour in making a kerosene emulsion.—(W. T. MACOUN).

Bordeaux and Paris green (K-L-B-P) and resin soap.

During the past month a considerable amount of work on this and allied forms of emulsion has been done in the laboratories of the Experimental Farm, Ottawa, and though this research is not completed, it may be advisable, as we are now at the season when spraying must be more particularly attended to, to publish certain of the more important facts which the work has brought to light.

First: Freshly slaked lime makes a smoother emulsion and one that stays in suspension longer than one made with ordinary air-slaked lime; the latter, however, furnishes a satisfactory emulsion if it is not too much carbonated by long exposure to the air.

Second: By using lime slaked immediately before using, the quantity may be materially reduced. A perfect emulsion can be made by slaking half pound of good quicklime and emulsifying with one quart of kerosene and two gallons of water.

Third: By the use of freshly slaked lime less time is needed for the churning in order to bring the mass to a perfect emulsion. Much, of course, depends on the vigor used in this part of the preparation, but on small quantities two to three minutes of continuous pumping were found sufficient.

Fourth: It is not apparently a matter of much moment that the lime be dry and powdery when mixed with the kerosene. Excellent emulsions have been made both from air-slaked lime and freshly slaked lime when they have been quite moist or even made into a thick cream with water before adding the kerosene.

FLOUR EMULSION.

Fifth: Flour has been successfully substituted for lime. Beginning with the same weight as proposed by Prof. Close, viz., one pound to one quart of kerosene, which made a perfect emulsion, the amount of flour has step by step been reduced until it was found that eight ounces were sufficient to hold in perfect suspension the quart of kerosene. The preparation with flour is most simple. The requisite amount of kerosene is placed in the vessel (pail or barrel)—which is preferably dry—and flour added in the proportion stated, viz., eight ounces to one quart, the whole thoroughly stirred and the water added, two gallons for every quart of kerosene. This is then vigorously churned as already described. The time necessary to churn will vary from two to four minutes, according to the quantity to be emulsified, and the emulsion is then ready for use.

When the emulsion is required for immediate use, the quantity of flour may be further reduced. It was found that as small a quantity as two ounces would emulsify one quart of kerosene, but that on standing a few hours a perceptible layer of kerosene had separated.

It has, further, been found that by scalding the flour before adding the kerosene a less weight is required. An excellent emulsion, which showed not the slightest separation of kerosene after one week, was prepared by scalding two ounces of flour, mixing the resulting paste with one quart of kerosene and emulsifying with two gallons of water.

The flour emulsion is smooth, readily and easily atomized, and does not clog the nozzle. Any separation into layers (no free kerosene will appear for several days, at least) may be readily overcome or remedied by simply stirring the mixture. It is equally effective, as might be expected, as an insecticide with the lime-formed emulsion, and amongst other advantages that may be claimed for it there is no perceptible whitening of the tree or foliage; and, further, in some places it may be found cheaper and easier to make than the lime emulsion. Its use is suggested as an alternative where good lime is unobtainable and also for mak-

ing the emulsion when intended for ornamental shrubs, etc., where the whitening of the foliage is objectionable. The flour emulsion can be added to Bordeaux mixture, Bordeaux and Paris green, if desired.

Experiments are in progress which indicate that the proportion of kerosene (the most expensive constituent of the emulsion) may be materially reduced without affecting the insectidal value of the spray. Further particulars of these trials will be published in the June issue of The Horticulturist.

FRUIT GROWERS CONTINUE TO PROTEST

THE announcement in the April issue of The Canadian Horticulturist that the Hon. Sydney Fisher, Dominion Minister of Agriculture, had placed the chief of the fruit division under the chief of the dairy division was a great surprise to many fruit growers who had not heard of Mr. Fisher's announcement in the House of Commons. The result is that protests continue to reach The Horticulturist from fruit growers in all parts of Canada who are considering what steps they had best take to deal with the situation. That the present arrangements shall not continue any great length of time is the evident determination of the growers heard from.

The following are a few of many letters on this subject received by The Horticulturist:

Mr. Ralph S. Eaton, Kentville, N. S., president Nova Scotia Fruit Growers' Association: I hope the Minister of Agriculture will, in the near future, deem the fruit interests of Canada of sufficient importance to warrant the establishment of a fruit division occupying the same place in the department as other divisions which are responsible only to the minister.

Mr. S. C. Parker, secretary of the Nova Scotia Fruit Growers' Association: I feel strongly on this matter, and think united action should be taken by the various associations in Canada to bring pressure to bear on the honorable minister to place our chief in full standing in the department. I shall be glad to hear of any new development and any plan of action that may be devised.

Mr. J. C. Metcalfe, of Hammond, B. C., president of the British Columbia Fruit Growers' Association: The fruit industry of Canada is of sufficient importance to require the appointment of a fruit commissioner for that division, as in the other divisions and responsible only to the Minister of Agriculture, and further would add the necessity of the various fruit associations and fruit growers generally agitating and pressing upon the Dominion government the appointment of a commissioner for the fruit division.

Mr. Thomas G. Earl, Lytton, B. C.: It is degrading to the enormous fruit interests of this province, as well as to those of the whole of Canada, that the fruit commissioner should be placed under the control of the dairy or any other commissioner. I would think that the dairy commissioner would have his hands full in caring for his own department, and, besides, dairying and fruit growing are quite different. I would suppose the Dominion government, when taking into consideration the enormous and continued expansion of fruit growing, would see the necessity for placing the fruit interests in the hands of a competent commissioner expressly for that purpose.

NEW BRUNSWICK HAS ACTED.

Mr. W. D. Albright, secretary New Brunswick Fruit Growers' Association: At the fruit growers' convention in Fredericton a resolution was passed endorsing my action in protesting by telegram to Hon. Mr. Fisher against the subordination of the fruit to the dairy division. In conveying him the resolution I wrote a somewhat lengthy letter in reply to which I received some weeks

later a letter fully explaining all the minister's reasons for the proposed change. The reasons to me, however, seemed mere excuses, and I think the press should not desist in its protest.

Mr. J. C. Gilman, Fredericton, N. B.: As a member of the New Brunswick Fruit Growers' Association I believe the fruit interests will not be served to the best advantage by being under the control of the dairy commissioner. Our fruit interests should have the best thought of some competent man instead of being served second handed.

Mr. George MacAlpine, Lower Gagetown, N. B.; In my opinion the fruit industry is only in the first stage of its growth, and its growing importance entitles it to as prominent a place as any other industry in the Dominion. I am in favor of having it stand on its own merits and not be subject to any other branch of agricultural work.

PRINCE EDWARD ISLAND.

Mr. P. N. Pate, O'Leary Station, P.E.I.: I am very much in favor of the fruit commissioner being independent of other agricultural work. In our small province I notice much more interest is being taken in fruit raising and many more orchards are being planted yearly.

QUEBEC SPEAKS UP.

Mr. O. M. Derby, Clarenceville, Que.: In view of the fact that our fruit industry has attained such proportions, and seems destined to become one of our most important departments of agriculture, I consider it advisable we should have a separate commissioner for that division.

W. D. A. Ross, Secretary Fruit Growers' Association, Chatham, Ont.: The fruit interests ought to be worthy of a division by themselves. If the same assistance is given to the fruit interests of the Dominion as has been extended to the dairy interests it may become just as important a division. It has been kept too much in the background. This matter should be pushed.

"Fruit Growers sidetracked," is the way in which Mr. W. C. Webster, of Stoney Creek, Ont., speaks of the matter. He goes on to say: "We very much regret that the Department of Agriculture has seen fit to unite the fruit growing industry with the dairy department. This has come as a great surprise to the fruit growers of this province. They have been looking to the Minister of Agriculture to acceed to the unanimous request of the associations throughout the Dominion to put the management of the fruit bureau on an independent footing. The industry is of sufficient importance to have as a head a man who has an intimate knowledge of all the details of fruit growing. It is just as important to have a head of this bureau as to have a minister of agriculture. We feel as fruit representatives that we have been treated very unfairly and unjustly."

More Fruit Might Be Grown.—Fruit growers in the Niagara district are beginning to realize that heavy, clay soil, when well drained, is the best for pears, plums and grapes. There are thousands of acres of this soil in the Niagara district well adapted for fruit growing, which are now only worth about $25 per acre. Much of this land in a few years will almost certainly be under cultivation for fruit.—(W. H. Bunting, St. Catharines, Ont.

The Best Export Pear in this district is the Duchess on dwarf stalks. I planted 1,030 last spring. The Duchess is a fall pear, and ranks ahead of the Anjou and Beurre Bosc. The Bartlett is the leading summer variety, and of winter varieties the Josephine de Malines and Easter Beurre. This latter will keep until April, and has a flavor similar to that of the Duchess, but is very coarse in texture.—(A. W. Peart, Burlington, Ont.

HORTICULTURAL COLLEGE AND STATION WANTED

THE fruit growers of the Niagara district have petitioned the Ontario Department of Agriculture to establish a horticultural college and fruit experiment station for their benefit. One of the strongest deputations of fruit growers that has ever waited on the Department of Agriculture interviewed Hon. Nelson Monteith, Minister of Agriculture, April 19, and laid their claims before him. Hon. J. S. Hendrie assisted Mr. Monteith in meeting the deputation.

The fruit growers of the southern fruit belt of Ontario have long desired to have a fruit experiment station and horticultural college, and recently they decided to bring the matter to a head by having a deputation wait on the Department of Agriculture. The deputation, which was introduced by Dr. Jessop, M.L.A., of St. Catharines, contained many of the most prominent fruit growers of the Niagara district and included representatives of the Hamilton and St. Catharines city councils, and boards of trade, as well as representatives from the municipal councils in the counties interested.

"To show you how thoroughly unanimous is the desire of the residents of the Niagara district that a horticultural college and fruit experiment station should be established for their benefit," said Mr. E. D. Smith, ex-M. P., of Winona, to Hon. Mr. Monteith, "I might state that all the municipalities in the Niagara district have passed resolutions approving of the government establishing such a college and station. There are five experiment stations in the Dominion, but none in the Niagara district, which is the most important fruit section in Canada. At the stations already existing apples are almost the only variety of fruit that can be tested to general advantage. What we need in the Niagara district is a station which will conduct experiments in the production of the varieties of fruit we grow and concerning which we are unable to obtain reliable information at the experiment stations which now exist. In the past our principal markets have been large cities not far distant from the Niagara district, to which we could ship our fruit without danger of its being damaged. The supply of fruit is increasing, which means that we must extend our markets.

"There has been a great growth in the trade with the Maritime Provinces, and the trade with the Northwest is rapidly developing. While we have been able to land our fruit on the local markets in good condition we find it is impossible to ship it to the distant markets although several varieties stand the shipment better than ours. California fruit growers are able to ship their fruit to all parts of the world and we should be able to do likewise. We need a fruit experiment station which will experiment in the production of varieties of fruit that will stand long shipment, so that we can be assisted in producing varieties that we can ship to distant markets. We have not one really good pear or grape. While some varieties are good shippers they each have some serious defects, such as poor taste, or susceptibility to disease. There are one or two good varieties of peaches and plums, but there is great room for improvement there also.

"If such an experiment station as we desire develops one good pear the revenue that will be derived from it by the fruit growers of the Niagara district would more than meet all the expense of the station. We do not want any 10 cent fruit experimental farm. I cannot too strongly impress upon you the enormous value to the fruit growers of finding varieties that will meet the requirements of the market. I believe the Dominion government should buy and equip the farm, but if it does not take the matter up there is a grand opportunity for the On-

tario government to do something that will be of great value to the fruit growers of the Niagara district."

"While we have many of our leading fruit growers here," said Mr. A. H. Pettit, of Grimsby, "I am safe in saying the whole population would have acted on the deputation had they been able. The experimental farms at Ottawa and Guelph are of great value to the fruit growers in the northern districts of Ontario, but not of nearly as much value to the districts where the tender fruits are raised. What we need is a horticultural college where our young men can receive instruction in the raising of fruit. Many residents of cities would send their sons to take a course in such a college. The best proof of this is the fact that many of them write to our growers asking if they will take their sons for a season that they may gain experience on their farms.

"When the farm at Guelph was started there was some complaint about the expense, but that time has passed, as the people recognize the great value of the college. This would be the case with the horticultural college we desire to have established. We do not want it to conflict with the college at Guelph, and I do not believe it would, as it will have a field all its own. It is our wish that it should be established in such a manner that it will be possible for students to graduate from the High schools, take a course in the college of horticulture and step out ready to take up practical work on the farm. Recently we had to send to Delaware for an expert to address a series of meetings in our district. The reason we had to send to that state was that they have such a college there and the gentleman who attended our meetings was of great value to our growers."

"There is no need," said Mr. W. H. Bunting, of St. Catharines, "to point out the value of the institutions we have, as that is recognized. It has been one of the greatest regrets of my life that I was not able to take advantage of a course at a college like the college at Guelph, and I have been endeavoring to partly make up for this loss by securing this advantage for the benefit of my family. We have no fault to find with the capable officers at the Experimental Farm at Ottawa, or those at Guelph, all of whom are doing excellent work. Their field is large, however, and they are unable to give the required attention for the special needs of the Niagara district. This has made it necessary for us to apply for assistance again and again, to the colleges of the United States, and at times these requests on our part have placed us in a somewhat humiliating position.

"We desire to have an expert staff to carry on work that will be of great value to the Niagara district. We have heard a great deal of criticism regarding the packing of fruit. It is impossible to pack good fruit if the growers are not in a position to produce the best. We have, therefore, come to ask for assistance which will enable our growers to raise the standard of their products."

"The pests which destroy the fruit in the southern district of Ontario," said Mr. Hodgetts, of the St. Catharines Board of Trade, "are different from those in the northern sections and our fruit growers need assistance in learning how to control them. As the whole of Canada is affected by a shortage in the wheat crop of the west, so a shortage in the fruit crop in the Niagara district affects all branches of trade."

"Fruit production," said Mr. E. Morden, of Niagara Falls, "is increasing wonderfully. Twenty bushels are being grown today where one was raised 30 years ago. There is an immense market to the south of us, which is yet to be developed. Such a college as we desire will be of great value to the growers all along the northern shore of Lake Erie. The tendency of high schools

is to educate the young men away from the farms. A horticultural college would tend to keep our boys on the farm."

Mr. Honsberger, of Jordan, pointed out that hybridizing fruit is an operation which is receiving a great deal of attention and which has accomplished wonderful results. He was of the opinion that a horticultural college and a fruit experimental farm might, by following up this line of work, be able to produce such varieties as the fruit growers of the Niagara district need for shipment to distant markets.

It was pointed out by Mr. W. J. Drope, of Grimsby, that fruit growers through ignorance frequently plant varieties of fruit which afterwards prove very unprofitable. If they had a thoroughly equipped college and experiment station, which could give reliable information of this nature, loss of this kind could be avoided. Other speakers included Mr. J. A. Keyes, of St. Catharines, and Mr. Nicholson, of Hamilton.

In replying to the deputation Hon. Mr. Monteith expressed the Premier's regrets that he was unable to be on hand to meet the deputation. The Minister of Agriculture stated that as yet the new government is only getting its feet in the stirrups and consequently it is not in a position to give an answer immediately to such an important request. The members of the deputation were assured that the department realizes the importance of the matter and that it will do all in its power to assist them.

Hon. J. S. Hendrie asked the deputation if the Dominion government had been approached. Mr. Honsberger stated in reply that the Department of Agriculture at Ottawa had been asked for assistance, but had stated that it could not take the matter up at present.

A GREAT INCREASE IN SPRAYING

"IT is astonishing how stirred up fruit growers are this year over spraying. Men are spraying who never sprayed before, while those who have sprayed in other years are spraying more thoroughly. They realize that if they are to successfully combat the grape and plum rot, apple scab and other troubles fruit growers are heir to, they have simply got to spray. For every power sprayer used in this vicinity last year there are three being operated this season."

These remarks were made to an editorial representative of The Horticulturist a few days ago by Mr. Murray Pettit, of Winona, who conducts the fruit experiment station at that point, and who is known as one of the most successful fruit growers in the Niagara district. The Horticulturist's representative, who visited the section to ascertain what the growers are doing this year in the line of spraying, was astonished at the evidence on every hand of the amount of that work that was being done. Orchard after orchard was passed where the trees were almost perfectly white, they had been sprayed so thoroughly. The main topic being discussed by the fruit growers who were seen was spraying, and it included such subjects as the spraying experiments being conducted by Prof. Lochhead, of the Agricultural College at Guelph, the test that was recently made on the farm of Mr. E. D. Smith, of Winona, of different makes of spraying machinery, or some of the new spraying mixtures which are being introduced this year.

"In former years," continued Mr. Pettit, "I used a barrel Spramotor pump which had three nozzles. It was operated by hand, and by pushing the work I was able to apply eight barrels of mixture in a day. This year I decided to secure a larger outfit which I could use to advantage on my grapes. After looking over the various machines on the market I finally decided to secure a spraying outfit from the Spramotor Com-

pany, of London ,Ont., which is fitted especially for spraying vineyards. At the spraying competition held in Mr. Smith's orchard this machine did excellent work and attracted a great deal of attention among the fruit growers. Two other well known makes of spraying machines were represented in this test, and I heard one leading fruit grower was so pleased with the working of my machine, which I loaned Mr. Smith for the test, that he offered an agent of one of the other makes $10 if he would release him from a contract to purchase one of his machines.

Loading Mr. Smith's Gasoline Spramotor

This illustration shows several of the barrels in which Mr. Smith boils his spraying material and his Spramotor being loaded. Mr. Smith is leaning against the wagon.

"My new machine can be operated by one man. It has eight nozzles, and I expect to be able to apply at least 16 barrels of mixture a day on grapes, and with about half the labor. It can also be used for spraying trees. If the horse is well trained one man is all that is required to operate it in the orchard, but otherwise two men may be necessary. One of the points I like best about this machine is that it is lighter than any other I have seen and generates the power from the axle with much less draft.

"This year I expect to spray three or four times with the Bordeaux mixture, but if the weather is very wet I may have to spray five or six times, in which case it is probable I will use the ammoniacal solution. The experiments that have been conducted at the Ohio experiment station indicate that the first spraying operations in the vineyard before the buds start are not necessary. This is a matter, however, on which Prof. Lochhead is experimenting."

An enthusiast in the matter of spraying was found on the next farm in the person of Mr. E. M. Smith, who this year has two hand pumps and one gasoline power outfit with a 120 gallon tank, all of the Spramotor Company's make, of London, Ont. At the time of the visit Mr. Smith had his power outfit at work in his plum orchard and was boiling large quantities of spraying mixture, not only for his own use, but for the use of other fruit growers in the vicinity.

"This year is my first experience using a gasoline engine to furnish power for my spraying," said Mr. Smith. "I have used it freely, and find that it is very cheap to operate, as the gasoline only costs about 25 cents a day, during which time I am able to apply 800 to 1,000 gallons of mixture. Two men are all that are required to run the engine and do this spraying. When I used hand power I was only able to apply about one-third the quantity of material with the same number of men. It costs about eight to ten dollars for the gasoline for the season's work when 300 to 400 barrels of the mixture are used. Other years it has cost three times as much for the power. My outfit, including the tank, engine and pump, cost $240. I am able to use the gasoline

Mr. Pettit's Spramotor at Work in the Vineyard

With this outfit it is possible to thoroughly spray vines on both sides of the cart at the same time.

engine not only for spraying, but for cutting feed, sawing wood, and other work of that nature. It is a three horsepower machine. Before buying my spraying outfit I examined the others on the market and became convinced to my satisfaction that the Spramotor machine I purchased was the best as regards ease of operation, cost of power and durability. The chief feature in its favor, in my opinion, is the quickness with which the spray can be applied. When loaded with liquid it weighs about one ton. By deriving the power from the engine no hardship is entailed on the horses."

Adjoining the orchard there were nine barrels in which the lime and sulphur mixture was being boiled. The mixture was cooked by steam secured from the engine. The cooking operation lasted about one and a half to two hours. Eighteen pounds of sulphur were used to 36 pounds of lime. Mr. Smith explained that for the convenience of his neighbors he boiled this mixture and sold it to them for 90 cents a barrel on his place. "I boil about 300 barrels of lime and sulphur," said Mr. Smith, "which is applied to the trees while the buds are dormant. I spray once with the lime and sulphur and three times with the Bordeaux mixture."

"How many acres have you in fruit?" was asked. "About 35," replied Mr. Smith, "including 1,500 or 1,600 peach trees, 2,500 plum and pear trees, and 12 acres of grapes. I spray everything. This year I started spraying about April 13, and expect to get through by May 1. As soon as the blossoms drop I start with the Bordeaux mixture on the plums, pears, grapes and apples. Very few growers in this vicinity spray as thoroughly as I do, but I have found it has paid me to do it thoroughly. My plums last season netted me about $2,500. They were a very clean crop, and I believe the large percentage of first-class fruit was due to the spraying. Most of my neighbors who did not spray had a very light crop. This year the majority of them are spraying. If I had used the Bordeaux mixture on my grapes last year I believe I would have saved the whole crop. As it was I only had about a third of a crop, owing to the rot which made its appearance for the first time in my vineyard. I sprayed one row with the Bordeaux mixture as a test, although when it was applied I did not expect to be troubled with the rot. Out of the 75 or 76 rows in the vineyard the one I sprayed was the only one that was good. This year I intend spraying every vine."

"What do you find your spraying costs?" was asked. "Last year," replied Mr. Smith, "it cost about $250. This year the cost will be $350 or $400. While this may

seem heavy, I am satisfied the spraying increases the saleable portion of the crop 25 to 50 per cent., which means that the work is a splendid investment."

"Are there many growers using the Spramotor gasoline outfit?" was inquired. "There are three in this vicinity," said Mr. Smith, "including Mr. A. G. Geddes, Mr. A. Vance Cline, both of Winona, and myself."

Like Mr. Pettit, Mr. Smith was satisfied that when he purchased his machine he secured the best for his purpose that there is on the market. While visiting at Mr. Smith's place the representative of The Horticulturist had his attention drawn to a pail that was being used for screening the spraying mixture into the tanks. It was fitted with a tube in the bottom, out of which the mixture ran. In the inside of the pail there was a conical screen with the top of the cone pointing up. As a result of this conical shape, the screen, when the mixture was poured into the pail, did not become clogged as the rush of the water carried the sediment from the top of the cone down the screen to the sides of the pail and allowed the mixture to run through the top part of the screen. Mr. Smith was quite enthusiastic in regard to the pail. "It cost me," he said, "about $1, and I save 50 cents worth of time and bad language every day through having it. Only three or four are being used in the neighborhood. The pail is simply an ordinary galvanized iron pail. I bought a foot square of brass screen, with a mesh of about 30 to the inch. The pail and the screen were taken to a tinsmith, who put a three-inch tube into the bottom of the pail and fitted the screen inside. It is a great convenience for, as fruit growers know, an ordinary flat screen soon becomes clogged."

Mr. Smith's Gasoline Spramotor Outfit at Work

While The Horticulturist's representative did not have the time to visit other fruit growers in the vicinity, he learned that among others who were using the Spramotor power outfits, which seemed to be very popular, are Messrs. F. M. Carpenter, C. J. Carpenter & Son, J. S. Cockburn, J. J. Foran and John A. Foran, all of Winona; W. M. Orr, of Fruitland; G. L. Book, of Grimsby, and Robert Thompson, of St. Catharines.

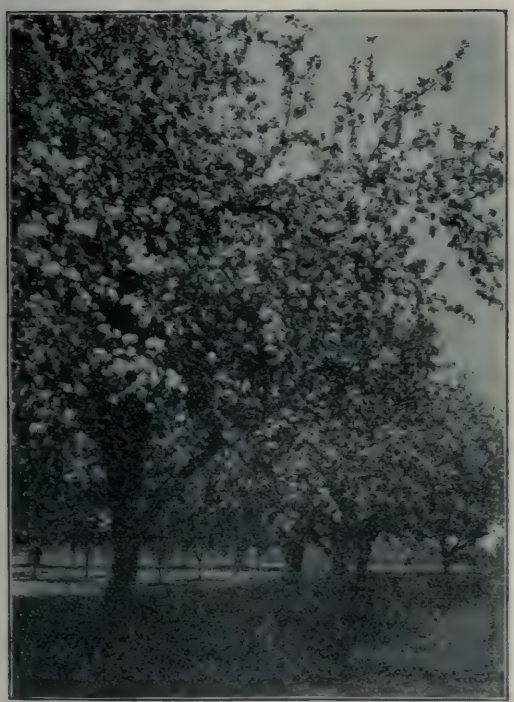
Spraying will save the apple crop when nothing else will. It must, however, be done thoroughly or it might as well not be done at all.—(Adolphus Pettit, Grimsby.

I do not know of any way in which farmers with orchards can make a better percentage upon the outlay of effort and money than by spraying their trees.

The Gravenstein Apple in Ontario

LINUS WOOLVERTON, GRIMSBY, ONT.

THIS famous German apple is a universal favorite. The excellence of its flesh, its beautiful and attractive exterior, its abundant productiveness, and its large size all combine to make it the very best apple of its season. It is not a very old apple. The first description of it was written about 100 years ago by a German pomologist, and about 1850 it is said the original tree was still standing in the garden of the Duke of Augustenberg, at the castle of Grafenstein, in Schleswig-Holstein, Germany.



Gravenstein Trees in Bloom.

The apple is widely grown in western Europe as an early fall market apple, and it is this apple that has made the Annapolis Valley, in Nova Scotia, famous; so much so, that many people suppose there is no place equal to it for apple culture. As a matter of fact this apple can be produced in Ontario quite as perfect, and possibly larger in size than in the Annapolis Valley, and it is a mystery why our apple growers have not planted them. Very seldom do we find an orchard of the Gravenstein in Ontario, and indeed rarely do we find even single trees of this excellent apple.

The illustration shows a row of trees of this variety, now about 50 years of age, growing on the experimental grounds of the writer. No trees on the place are as beautiful in blooming season as these; the great, pure white blossoms throw all other varieties into the shade, and attract the ladies in search of floral decorations. The fruit makes the most delicious sauce, and the very best of apple pies; while for a commercial variety it is unexcelled. The fruit is clean and uniform in size, and it commands the highest price in the British markets.

Pears in an Apple Orchard

D. JAMES, LANGSTAFF, ONT.

I HAVE only about 20 or 22 pear trees planted in and about my apple orchard. They were planted for home use and not to make money, but having more than required I always sell the surplus.

The Flemish Beauty has been the most profitable. The Improved Kieffer is good for canning and will keep well for shipment to the northwest. The Bartlett is not a healthy tree, but of course the fruit is luscious. The Ritson, Buerre Clairgeau and Buerre d'Anjou are grown, besides some with whose names I am not acquainted. A late fall or winter pear is the most profitable, as the grower is not forced to market them as soon as gathered. The Winter Nellis is highly spoken of by others.

There is no place in Ontario where co-operation in the spraying and marketing of fruit is more neglected and more needed than in the Georgian Bay district.—(Wm. Patello, Creemore, Ont.

SPRAYING WITH THE NEW K. L. MIXTURES*

THE San Jose scale made it appearance on chestnuts and various shrubs in the United States as well as on fruit trees, said Mr. A. N. Brown, of Wyoming, Delaware, in his talks before the Niagara Peninsula Fruit Growers' Association, last month, but it has been fought successfully and it is the duty of fruit growers to fight it persistently and to gain control. The black rot is another prevalent disease, but it has been successfully combatted. In the state of Delaware spraying has been attended by the most satisfactory results. The trees have been made almost immune from attack. A healthy tree will resist attack. Trees can be made healthy by spraying, which will kill other pests as well as the scale. An addition to the wash will kill fungi.

He would advise against the use of caustic soda, but the lime, sulphur and salt wash is good. Oil—crude or refined petroleum —will kill scale. There is a soluble oil in use—19 gallons of water to one of oil is the proportion. The new K. L. mixtures which are being experimented with, and which promise to be most effective, were described by Mr. Brown. K. L. is made from kerosene and limoid, the latter a high grade magnesian lime, with 40 per cent. magnesia. The proportion for the mixture is one quart of oil to one pound of limoid. Crude oil will not do. It is a question whether K. L. can be used in Canada on account of the expense of refined oil. In the United States they can buy it for seven and a half cents per wine gallon by the barrel, and at that rate they can use it.

A test was made at two or three of Mr. Brown's demonstrations to see if ordinary Canadian lime can be used instead of limoid, and though only partially successful it appeared as if it might. Bordeaux mixture can be used instead of water, and the wash K. L. B. then becomes a fungicide. By adding a poison, such as Paris green, London purple, or preferably arsenide of soda, it becomes also an insecticide, K. L. B. P., and will kill chewing insects, such as codlin moth, etc. The lime is simply a conveyor to carry the oil evenly to all parts of the tree so as not to burn any part, which oil is liable to do.

The advantage of K. L. is that it is easily made and will do for a summer wash and has greater covering capacity than other washes. When dry slaked or air slaked lime is used the mixture must be agitated violently for five minutes to emulsify it; when limoid is used the agitation need only continue three minutes. When thoroughly emulsified the kerosene is not likely to separate from any of these forms of lime.

It is important that the materials used should be pure. Every part of the tree should be thoroughly sprayed, otherwise the scale will not be killed and will soon spread. The wash should be in the form of a spray, not a sprinkle. Large orchardists should use power machines.

If the Bordeaux mixture is properly mixed, said Mr. Brown, one application is enough. The bluestone may be seen all season on his trees from one application. He used arsenide of soda because it is soluble in water, other poisons are not, but it is a rank poison and has to be used very carefully. It is better than Paris green and only costs half as much.

The K. L. B. P. mixture, Mr. Brown claimed, is a panacea for all the pests of the orchard—sucking insects, biting insects and fungous diseases.

I believe in thorough cultivation of the peach orchard and heavy pruning.—(Adolphus Pettit, Grimsby, Ont.

If left to itself the San Jose scale will destroy an orchard in two to four years. Spraying is the only remedy.

* This article, owing to crush of matter, was crowded out of the April issue.

NOVA SCOTIA AS AN APPLE GROWING PROVINCE*

RALPH S. EATON, KENTVILLE, N. S.

ON account of the general large crop throughout all apple growing countries and especially in England, the prices for fruit shipped before December 1, 1904, were very low, the lowest since 1896. Many fruit men would have been better off had they left their Gravensteins on the trees. Blenheims were particularly clean and their seemingly spot proof skin advanced them many points in their position among the most desirable varieties. The King, too, though always popular, strengthened its place on the markets last year.

Comparisons between Nova Scotia fruit growers and others are usually interesting. Knowing that the great bulk of our apples are grown in a little valley between Windsor and Annapolis it is natural that we should be curious to see how our output compares with the big province of Ontario and some apple states of the Republic. Our fruit business occupies a conspicuous place and may be regarded with pride. The value of its exports exceeds the value of the combined export of all our other farm products.

From carefully prepared statistics of the International Apple Shippers' Association the following estimate is made of the crop for 1903, a year of good average crops for Ontario and the States mentioned:

	Barrels
Nova Scotia	525,000
Ontario	547,000
Maine	500,000
Massachusetts	132 000
Pennsylvania	173,000
New York	3,184,000
Ohio	240,000

Fruit growing has increased the value of farms in fruit districts from two to five times the value of farms of equal area in other parts of Nova Scotia. It has changed many acres of our country from a value of $20 or $30 to the selling value of $1,000. It has changed hundreds of farms from a value of $1,000 or $2,000 to $10,000. It has changed dozens of farms from a value of $2,000 or $3,000 to $15,000 and $20,000 and a number to $25,000 and $30,000. It has advertised the province more than any one of its products. In visiting, a few years ago, a number of horticultural societies and fruit men of the United States, I was met almost invariably with the question, "Are you from the great fruit district of Nova Scotia?" It is probable that more people in the world know of Nova Scotia from its fruit than from any other source.

The average yield of apples in Nova Scotia for the last 10 years has been about 300,000 barrels. The bearing orchards 25 years of age and upwards well cared for have been producing during this time about 100 barrels per acre. All orchards are not well cared for and perhaps 50 barrels per acre would be a fairer average estimate. This would show the crops to have come practically from 7,000 acres or 11 square miles, or a square of about three and a quarter miles. Does this not seem almost incredible? Yet this small square properly cared for will produce 700,000 barrels annually.

The area of Nova Scotia is 21,731 square miles, about 2,000 times the area producing our apples. Only a very limited proportion of this area is not suited for this fruit. This has been proved in many ways. The county exhibits at the Provincial Fair substantiate this. Hants and Pictou are magnificent counties for fruit and each could be growing as well as not, without the slightest interference with the other crops, a million barrels of apples annually. Beautiful apples have been grown in the most northerly points of Cape Breton and southerly parts of Shelburne, Lunenburg, Yarmouth, Digby, Halifax, Antigonish and Victoria. Many growers in these districts consider

* An address delivered at the last annual convention of the Nova Scotia Fruit Growers' Association, of which Mr. Eaton is president.

their apples excel the "Valley" in quality. It has been largely accidental that King's and Annapolis counties have been growing the great bulk of the fruit.

During the next 10 years King's county, Nova Scotia, will be rather conspicuous for its output. Though from one standpoint the plantings of recent years have been few, yet in the aggregate they have been sufficient to put the crop at 500,000 barrels in the near future. The setting of 1,000 to 2,000 trees by an orchardist of late has scarcely caused a passing comment. Fifteen years ago 1,000 barrels was the highest mark for a single farm. Eight years ago 2,000 barrels was the largest figure. Two years ago 3,300 barrels were harvested from one property. Within five years 4,000 barrels, within 10 years 5,000 to 7,000 barrels will be shipped by a single grower.

After evolving a scheme for encouraging the more rapid development of fruit culture in the other counties I presented it to the government of the province. It included the planting of one to three model and experimental orchards in the most desirable localities in each county and the securing of five to ten farmers in each locality to duplicate in area and in care the pattern set by the government.

The government has adopted the scheme in part, having established one or two orchards of two acres in each county. The success of the scheme submitted should aid largely in stimulating the planting in large areas around each nucleus and quite rapidly cover the bare fields with trees supplying a variety and quantity of fruits which will make each county produce, it is hoped, in the not far distant future, as much as either King's or Annapolis counties are growing to-day.

CANADIAN APPLES IN ENGLAND

T. H. RACE, OTTAWA, ONT.

WHAT becomes of all our good Canadian apples is a question that I have been asking myself during the past two months without a satisfactory answer. I do not find them on the tables of our ocean steamers, nor on the hotel tables in England, nor on the large market stands, nor in the shop windows. On the Cunard and Anchor line steamers, both British lines, nothing but a third class Baldwin can be found upon the tables. In fact throughout England it was Baldwins of a low grade that I found offered everywhere. Having been in England for the past two months in charge of the Canadian exhibit at the Colonial Products Exhibition, Liverpool, I made it my business to see and learn all I could of Canadian fruit there. For our exhibit we had 55 boxes of well selected apples, Ben Davis, Spitzenburgs, and Blue Pearmains from British Columbia; Peerless, McIntosh Red from the St. Lawrence valley; Spys, Baldwins, Stark, Ribston Pippins, Greenings, Kings, Golden and Roxbury Russets and Cranberry Pippins from Ontario, Quebec and Nova Scotia. In all the boxes each apple was wrapped in a separate piece of paper. There was never before such an attractive display of apples seen in Liverpool. "Why cannot we get our apples done up in that shape here in the market?" was the question that everybody asked. We wholesaled our stock to one of the most enterprising dealers in Liverpool at six shillings a box, and he disposed of them at a large profit, as he said himself, "like wild fire."

I do not know that this price, six shillings, would pay the packer, but we could have got two shillings more just as easily, only we wanted to give the dealer a chance to boom them, which he did.

One morning I visited St. John's market, the largest in the city, and I saw there any

amount of United States apples, all low grade, selling at four pence and five pence per pound. No one seemed to be offering a fine quality got up in an attractive shape with the placard, "grown in Canada," as we recommended to the dealer who got our stock. Another morning I visited the great wholesale mart and saw lot after lot of United States Baldwins knocked down at 10 to 14 shillings per barrel. After these had been disposed of a few lots of No. 1 Newtown Pippins were offered and were snapped up at 20 shillings per half barrel. This convinced me that there is as much in a name and a condition as in quality. Establish a name for our No. 1 Spys, offer them in an attractive condition, and there should be as much money in them as there is in the American Newtown Pippin. Another thing that attracted special attention in our exhibit was the nicely packed boxes of evaporated apples. We distributed a few samples of these among the better middle class and in every case the recipient came back and pronounced them delicious. We disposed of our stock of these also to the dealer already referred to—Thos. Dowd, of Moorefield Place, Liverpool—who is going to introduce them to the Liverpool trade. I see no reason why a very large trade should not be secured in England for this Canadian article. So far as Liverpool is concerned I believe the matter is in good hands, and if Mr. Dowd does as well for Canada as has been done for the island of Jamaica in handling her fruits and finding consumption for them, it will be well for the Canadian growers, packers and producers to get into business relations with him.

NOTES ON SPRAYING

PROF. W. LOCHHEAD, O. A. C., GUELPH.

FRUIT growers and gardeners should give considerable thought at this time of the year to the selection and purchase of spraying materials. They must take for granted that injurious insects and fungous diseases will attack their crops this coming season and should be prepared to meet their attacks successfully.

The secret of successful spraying lies in a thorough knowledge of the habits of the injurious insects and fungi, and in the intelligent application of the chemicals which have been found most effective as insecticides and fungicides. Some sucking insects, like the San Jose scale and the pear psylla, can be best treated in the spring before the buds open, with the lime-sulphur solution. The preparation of this solution is well known. Where the orchard is large it is advisable to boil the lime and sulphur for one and a half or two hours, according to the formula in use for the last two years.

The lime-sulphur solution applied to peach trees will prevent leaf-curl to a large extent. It is also, therefore, a valuable fungicide. As soon, however, as the buds open other solutions must be used. The standard fungicide is Bordeaux mixture. The 4-4-40 formula is generally employed in Ontario, *i. e.*, four pounds copper sulphate, four pounds quick lime, 40 gallons of water. Stock solutions of known strength of the copper sulphate and lime are prepared and kept in separate barrels. Two precautions must be taken in making the spraying solutions: (1) The stock solutions should be poured separately into the barrel, which should be nearly half full of water. (2) The ferrocyanide test should always be made to determine if enough lime has been added.

TO KILL BITING INSECTS.

Some arsenic compound should always be mixed with the Bordeaux to poison the biting insects and caterpillars. Paris green is the one most commonly used, and at the rate of six to eight ounces to the barrel of Bordeaux. White arsenic, being cheaper

and more constant in strength, is being used quite extensively by many growers in the following forms:

1. Arsenite of soda, made by boiling four pounds of sal soda crystals in one gallon water with one pound of white arsenic. A pint of this solution is added to the barrel of Bordeaux.

2. Arsenite of lime, made by boiling one pound of white arsenic in two gallons of water for half an hour, then adding two pounds of good quick lime. A quart of this solution is used with a barrel of Bordeaux.

One application, at least, should be made before the blossoms open, to prevent scab on apple and pear, brown rot on plum, and the ravages of the bud moth and the case bearers. Another application should be made after blossoming to prevent scab, brown rot, and the codling moth. Two more applications are necessary through the season if fruit free from scab is desired.

ONTARIO AND NOVA SCOTIA METHODS COMPARED

G. FRED. MARSH, CLARKSBURG, ONT.

AN interesting article by Mr. A. McNeill, Chief of the Fruit Division, appeared in The Horticulturist, in which he says: "The extent to which commercial fertilizers are used in Nova Scotia would seem most extravagant to an Ontario farmer." Mr. McNeill also says, "the Ontario grower might well envy the vigor of the Nova Scotian trees," and this vigor he ascribes chiefly to the better care and attention which the trees receive. These will all play their part, but no doubt a considerable part of it is due to the feed.

A farmer cannot expect a horse to do good work or a cow give a plentiful supply of milk unless they have the proper food; neither can a tree bring forth fruit year after year unless it is properly fed. In Nova Scotia a common application to a bearing orchard is 300 pounds of bone meal and 200 pounds of muriate of potash per acre, and when a tree carries a heavy load a further application of nitrate of soda is made in order that the growth of the tree may not be checked and the next year's yield thereby lessened. The effect of this fertilization is seen not only in the yield and quality of fruit but also by the fact that the off year, as it is called, is almost entirely done away with, and the Nova Scotia farmer can count on a crop each year.

In comparison with this picture the average Ontario orchard grows a number of crops of grain and is then seeded down, and is usually suffered to go on producing hay indefinitely. It will be fortunate indeed if it gets an application of farmyard manure once in six or seven years, while the ashes which should be used to balance up the farmyard manure are shipped out of the country to help the United States farmer grow fruit. Surely the Nova Scotian apple grower would call this "extravagant practices."

At any station in Ontario can be seen the dealers screening and grading their ashes ready for shipment. The Ontario fruit grower must be very blind to his own interests when he allows as much as a million bushels of ashes to be exported annually from his farms.

A recent call on one of our fruit growers brought this very prominently before me. This gentleman had drawn out the trimmings and limbs from the spring pruning and piled them in a loose windrow, afterwards burning them and putting the field in corn. On the spot where the ashes had been plowed in the corn yielded at least twice as much as the rest of the field. When I asked what he would put in the orchard to take the place of the plant food which had been taken from the trees to make corn he was much surprised and did not seem to realize that an apple orchard required to be fed just the same as a corn field.

A Codling Moth Parasite

W. LOCHHEAD, O. A. C., GUELPH.

I HAVE received the following letter from Mr. Ehrhorn, Deputy Commissioner of Horticulture, California, regarding the parasite of the codling month which he has introduced into California. The codling moth is not nearly so destructive in Europe as in America, and it is generally suspected that a certain parasite keeps the moth in subjection.

Horticulturists are greatly interested in the codling moth, which involves millions of dollars losses annually. For many years entomologists and others have been searching for valuable parasites which, if propagated in sufficient numbers, would keep it in check.

Mr. Ehrhorn's letter is as follows: "We have a parasite of the codling moth, and some have been liberated in various sections of California and we are breeding them at our office. I am unable to give much information with regard to the parasite, as the time has been too short to make any extensive observations, but this very insect keeps the codling moth in check in Europe, and we are in hopes that it will do the same for us in California. Time only will determine whether or not the parasite will do the work."

Trees Which Failed to Grow

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

I set out a few apple trees last spring. Some of them did not make any growth, yet they are as green as can be right to the top. I also planted an Austrian pine. It does not look very well, although it is green. Do you think they will grow ?—(Chas. Derdaile, Walkerville, Ont.

If the apple trees and pine trees were still alive in the autumn of 1904 it is quite likely that they will live. It very frequently happens that when trees are received in poor condition, or if the soil is not properly prepared, or the trees not planted carefully, that they will make little or no growth during the first season. If the winter is very severe it is quite possible that the trees may die, as trees that are not in a thrifty condition suffer, but the chances are that they will live.

What Varieties Would Be Best?

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

What varieties of fruit are best suited for Simcoe county ? Will chestnuts and filberts grow here ?—(W. A. Platt, Phelpston.

You have in your immediate neighborhood at Craighurst one of our Ontario Fruit Experimenters, Mr. G. C. Caston, who could give you more reliable information on the subjects mentioned than any one else I know of in that part of the country. The varieties of apples he has found most profitable are: Duchess, Alexander, Blenheim, Ontario, Spy, and Guano. The Duchess is, on the whole, one of his most profitable varieties, but it is a fall apple, and it would not be wise to plant largely of it unless you are sure of being able to handle the crop in the proper season for market. The Blenheim, Ontario and Spy succeed best when top worked on some hardy stock, such as Tallman Sweet.

Chestnuts and filberts would not be likely to succeed in your neighborhood. Chestnuts grow well naturally in the southern parts of Ontario, but I know of no place where they have been successfully grown in the northern parts of the province. Filberts are barely hardy enough for the southern sections, and it would be useless attempting to grow them in the northern portions of Ontario.

It would be better for Nova Scotia if there were not more than half a dozen varieties of apples in the whole province and certainly in a neighborhood it would not be wise to grow more than half a dozen. No farmer should have more than three varieties on his farm for export.—(A. McNeill, Ottawa, before Nova Scotia Fruit Growers' Association.

PRUNING IN THE SPRING *

J. M'P. ROSS, TORONTO.

I DO not know any gardening operation that gives as much pleasure to the reflective mind as pruning. Every bud has an individuality of its own, as it contains the duplicate of the stem or branch it is on. No branch should be removed without a reason, and the trained horticulturist can see at a glance why such and such a limb should be cut back or thinned out. The pleasure comes in feeling that your work is done understandingly.

Pruning is identical with cultivating. As the gardener hoes out the weeds between the rows and thins the plants in the row for the purpose of giving sun and air to those that are left, knowing that when they are developed they will require all the space left, so the intelligent pruner thins out the branches on the shrub, vine or tree so as to allow the sun and air to benefit the fruit. By the removing of the surplus growth he sends the sap that would have otherwise gone to supply branch, leaf and fruit into the remaining branches, foliage and fruit, making sturdier branches, larger foliage and finer fruit.

It is a great pleasure to the pruner when he comes to a tree or bush that is full of wood, misshapen and neglected, to put it into proper shape, that is, to have the branches nearly balanced all round, to prune so as to leave the stems or branches all about the same dimensions; if the growth is too much to one side to shorten that well back, thus sending the sap to the weaker side.

We prune to produce form, to produce fruitfulness and to restrain fruitfulness. To produce fruitfulness summer pinching is practised. When a tree is growing luxuriantly and not fruiting the reason is that the roots are revelling in rich soil with abundant food and sending up sap so freely that it is simply making wood. To check this, when the young shoots are, say, six inches long, nip the end off with the fingers. This checks the growth and induces the tree to form fruit buds which will fruit next year. Bending the branches down by tying on weights is another system. Any method will answer that retards the sap. Root pruning is also effectual. This is done by digging a trench around the tree and cutting the leading roots with the spade, which is almost akin to transplanting. This generally results in throwing the tree into fruit bearing. Going over the tree when in full growth and pinching back the leading shoots two or three times is the most effectual.

Some seasons are so cold and wet when the trees are in bloom that the bees and insects cannot fly, and the blossoms are not fertilized, and sometimes late frosts are reasons for loss of fruit.

Gooseberry Untrimmed

OVER PRODUCTION.

To restrain over production of fruit prune the limbs hard back. This removing of the wood leaves fewer buds on the tree, and when they grow having more sap to draw on they produce larger leaves to draw the sap, inducing a healthier, thriftier growth all round the tree, entirely renewing the wood. Old trees exhausted by bearing can thus be renewed into bountiful growth and a new lease of life of fruit bearing.

Very few flowering shrubs should be trimmed at this time of year, but should be

* A paper read at the April meeting of the Toronto Horticultural Society.

left till after flowering, as any cutting back now or thinning out means merely removing so many flowering branches. Above all things do not clip them into round heads, as it totally destroys the individual growth with its characteristic grace, leaving nothing but meaningless round form, abominable in its stiffness. The hydrangea is the only

Gooseberry Trimmed

shrub that should be well clipped back in spring before growth. All others should be pruned or thinned out after the flowering season is over.

Raspberry canes cut back to within six inches of the ground will give a crop of fruit later in the season, after the other canes pruned back in the ordinary way have fruited and gone.

We all know how much finer the fruit is that is grown on young bushes or trees. It is generally larger and always perfect, with high color and shining skins as though polished. This is accounted for by free open exposure to sun and air, and this fact should point out strongly the benefit of pruning, which always should tend to keep the bush or tree open and well supplied with vigorous wood. The character and habit of growth of different varieties of fruit trees has also a bearing on the pruning necessary for each. The pruning required for Northern Spy should always be to widen the branches and open the centre, as the tree has an upright tendency of growth similar to the lombardy poplar. As a contrast, in the case of the Rhode Island Greening, the object is to promote an upright tendency, as the habit of this variety is to spread out, and its branches after bearing soon touch the ground unless the pruner lifts them up.

The tendency of sap is always to the top bud, which if not cut back goes on indefinitely. The King of Tomkins is an example.

Pruning to produce an equal distribution of sap in all the branches consists in thinning out the branches so as to have the growth of the tree equally balanced all round. As the sap always ascends to the top of the tree, leaving the lower branches in a feeble condition, it is necessary to cut back the leading shoots so as to force the sap into the lower branches and thus keep up a uniform growth. Pruning the smaller branches on the strong part of the tree and leaving them on the weaker part restores

Rose Untrimmed

the balance, as by removing the branches you remove the foliage which attracts the sap, and leaving branches with their foliage on the weak part induces the sap to go there, thus increasing the strength of the tree in that part.

As gooseberries bear their fruit on the two-year-old wood it is necessary to always keep a few strong shoots growing to keep up the head and renew the bearing wood. These shoots are shortened back next year to produce lateral fruit-bearing branches. In short the bush should be trimmed to have say five leading branches placed at equal distance from each other, with the center open to avoid density and confusion.

Roses require hard cutting back, particularly hybrid perpetuals. Fully two-thirds of last season's growth of wood should be removed. This hard cutting back and thinning out weak growth induces such a vigorous growth and large sappy foliage that insects do not molest them, but leave them for weaker foliage. The blooms will also be larger and sweeter scented, both qualities greatly to be desired and produced by severe cutting back.

Persian Yellow and Austrian roses should only be pruned every second year, while the Crimson Rambler type of roses require no pruning beyond removal of weak or dead wood, or the removal of a branch growing where it is not desired.

Climbing roses of the Prairie type require sharply spurring back, and long leading branches should be cut back to firm wood by thinning out into branches or canes of similar thickness. Disbudding roses, or rubbing off those buds not wanted prevents after confusion and economises sap. When cutting back the shoots cut close to an eye, leaving as far as possible full plump buds as

Rose Trimmed

more likely to produce flowers. Cut also those pointing outwards as more likely to give a handsome shape. Moss, Provence, Damask and Austrian roses should be cut back to within two or three eyes of the riper wood. Vigorous growing kinds do not require too close pruning, but weaker growing kinds should be severely cut back.

HOW TO PLANT STRAWBERRIES

J. O. DUKE, OLINDA, ONT.

IN planting large patches of strawberries I have had the best results by simply plowing a furrow across the field and setting the plants against the land side of the furrow, which is filled in at once on the return of the plow, marking out going one way across the field and filling in the furrow coming back. Six men can plant as fast as one man with a team can mark out and fill in, thus planting quite a large patch in a day.

The furrows should be about four feet apart and most varieties may be planted three feet apart in the row, though some kinds, like Michael's Early, which produce many plants, can go four or five, while Bubach and Clyde, which are not heavy plant producers, should be planted 18 to 20 inches. Strawberries planted in this manner should be cultivated and well hoed within a week of planting, then cultivated often enough during the summer to keep them free from weeds and grass. Care should always be taken when cultivating to run the cultivator

the same way in the row, thus training the runners in one direction.

Blossoms and fruit should be clipped off as soon as they appear. Planting should be done about May 1, and not later than May 10 in southern Ontario. The rows should not be allowed to become more than 18 inches wide. It is a good plan to sow the patch to oats as soon as enough plants have formed. This prevents the formation of a lot of weak plants late in the fall, and also provides a nice mulch. If this is not done the patch should be well covered with clean straw early in the winter.

BEST VARIETIES OF FRUIT

"IN raspberries the Turner and Reliance," said Mr. A. E. Sherrington, of the Huron fruit experiment station, to a representative of The Canadian Horticulturist, "have been found to be the two best early varieties in this vicinity, and the Cuthbert and Phoenix the two best medium and late varieties. In currants, of the reds, Fay's Prolific, Pomona and Versailles have proved to be the best varieties, both in productiveness and quality. Among the blacks the Champion and Naples have been the most satisfactory in every respect, including growth of bush and fruit, as well as quality.

"Of white currants the White Grape is the best variety. The experiments with gooseberries have shown the Downing and Pearl, both of which are American varieties, to be the best and most profitable. The Red Jacket, also an American variety, is very promising but requires further testing.

"The three favorite strawberries are Michael's Early, Sanders and Brandywine; the last two are the best for canning. The apples that have given the best results include the Spy, Ben Davis, Rhode Island Greening, Duchess, Baldwin and Golden Russett. Many other varieties have done well but have not proved as prolific commercially. Among the promising new varieties are the Northwest Greening, a winter variety which has a healthy, vigorous tree, is an early bearer and produces much fruit of fair quality, and the Salome, a very desirable winter apple."

IN THE BURLINGTON DISTRICT.

"Among the best varieties of red currants for the Burlington district," said Mr. A. W. Peart, of the Burlington station, "are the Victoria, Wilder, Cherry and Fay's Prolific, for early varieties, and North Star and Prince Albert for medium to late varieties. In black currants the most desirable commercial varieties are the Sanders, Naples and Collins' Prolific, the latter being a late variety. In white currants the Grape is the largest and most productive, while the Imperial is superior in quality. The severe weather of a year ago had the effect of drawing the line between hardy and tender varieties of blackberries very closely. Those which passed through and cropped last fall out of a list of 22 varieties were the Agawam, Western Triumph, Snyder, Ancient Britain, Eldorado, Stone's Hardy and Wachusetts. For a commercial plantation Mr. Peart considers the best paying varieties are the Agawam, Snyder, Kittatinny and Western Triumph."

I have tested 15 varieties of blackberries and have narrowed them down to two, and these two fill the bill for this locality. They are the Eldorado and Agawam. They lose none of their bearing wood during cold winter and give excellent crops, both in quality and quantity.—(G. C. Caston, Craighurst, Ont.

We couldn't do without such a paper as The Horticulturist.—(C. W. Mitchell, Pt. Elgin, Ont.

The Strawberry Patch

MRS. JOHN GILFILLAN, KIRKTON, ONT.

ROWS of strawberry plants are usually placed about three and a half to four feet apart and the plants 15 to 24 inches apart in the rows, according to the thriftiness of the variety or varieties grown. The choice of varieties should only be made after actual test. Begin planting as early in the spring as possible, to get the benefit of early rains and thus give the plants a vigorous start.

Plants should always be well trimmed, all large or dead leaves removed, together with the tips of the roots, which will then branch out and take a firmer hold of the soil. Begin cultivation immediately after planting and continue throughout the season, thereby keeping weeds in check, conserving the moisture in the soil and confining the plants to their alloted space in the rows. Blossoms should be removed the first season, as well as any runners that may appear before the plants are in a sufficiently vigorous condition to support them.

Chrysanthemums in May

GEORGE HOLLIS, BRACONDALE, ONT.

MAY is a busy month for the chrysanthemum grower, especially for cut flowers. Cuttings of late varieties should be rooted ready to plant early in June. Keep the cutting bench rather wet and shade the plants from the sun. The air from the ventilators should be kept off them by hanging a curtain of cotton before the plants as, otherwise, the air will wilt them badly.

The early varieties such as the Bergsman and Monrovia should be planted this month. A good, stiff loam, which has been stacked for some time, is the best soil to use. Four wheelbarrows of this and one of well rotted manure (cow manure preferred), with some fine ground bone, say a four-inch pot full of the bone to each load, or two bushels of soil, makes an excellent mixture.

Clear the bench and give it a coat of new lime. Put four to five inches of soil in the bench, the coarse in the bottom and the fine on top. Plant the early varieties about five inches apart in the row; if fine blossoms are wanted leave seven inches space. The late varieties need more room.

Pot the cuttings as soon as they are rooted. Do not leave them until they become hard and draw up thin, as if you do you cannot obtain high class flowers from such stock. See that the exhibition pot plants are kept near the glass and potted as needed, and grow the strongest shoots at the back. Syringe the plants with tobacco water for the black fly, or fumigate them. A good start with chrysanthemums is a great advantage.

Planting Asters

FOR asters dig and rake fine about a square yard of rich soil in the open garden. If the soil is poor, dig in some well-rotted manure or cow manure. When the soil is fairly dry, make some shallow drills about half an inch in depth. The drills should be about eight inches apart. Sow the seed as soon as possible, thinly, about an inch apart in the drills. Rake the soil over lightly, sufficient to cover the seed. If the soil is dry, give it a light watering, using a fine sprinkling watering can.

When the plants are about two inches in height, transplant into rows about 15 inches apart. The plants should be about 10 inches apart in the rows. The soil should be prepared in the same way as for the seeds. The plants should be set in the soil a very little deeper than they were when growing in the seed bed.

One Layer of Manure to three or four of sod would be a better proportion for raising early vegetable plants than that given on page 146 of the April issue, as a compost less rich in fertilizing property produces a hardier and sturdier growth than when a very rich compost is used.—(Correction sent in by Mr. Hunt.)

Scarlet Salvia*

JESSIE EDMUNDS, BURLINGTON, ONT.

THIS is one of the best bedding plants we have where a great show of brilliant color is desired. Being a tall growing plant, is is very effective in groups for the lawn where prominent beds are desired. Its flowers are borne in spikes six inches long or over, and are the richest imaginable scarlet. So bright are they that they have a glow like that of fire when the sun shines on them, and so deep is their tone that they seen as if made of velvet.

A row of these plants make a magnificent background for a border along a fence or building on the sunny side. It is excellent for cutting. It is of the easiest possible culture. Either plant the seeds in the open border or under glass, to transplant when they are two inches high. Give them a rich mellow soil, keep the weeds down, and nothing more is required, unless the season should be dry, in which case it may be necessary to water daily.

If growing in the open, stake the branches as they are very brittle and easily broken by wind. If some of the shoots that spring freely from the roots are taken off and potted in September you will have a fine plant for winter blooming. The old plants will continue to bloom till frost nips them. The red spider is the one foe of the salvia, and if it makes its appearance the plant must be showered daily or it will be ruined.

Pruning Roses in other countries is generally done in the fall, but here it must be left until the spring, and I have found it most advantageous to leave it until the very end of April or the beginning of May, and the most to be done then is to remove all the dead wood, but some pruning may be necessary in the early part of July in cutting back to a few eyes some of the strong growing shoots, and thereby perpetuating the bloom. —(Robert Barclay, Winnipeg, Man.

* Extract from address prepared for a Women's Institute Meeting

Rose Culture

W. G. BLACK, OTTAWA.

IN selecting a place for a bed of roses the situation, as far as possible, should face the south and east. Roses require full exposure to rain and sunshine; they also require shelter from storms, north and west winds, and it is desirable to have a rose garden shaded from the fatigue of the afternoon sun. Beds should be so placed that each plant can be seen from the walk. This prevents beds being tramped on.

Taller growing varieties ought to be placed at the back and the smaller ones in front, but to accomplish this the young rosarian will have to make many changes after plants have grown. It is well to manure plants twice yearly, late in the fall and again after the first bloom of summer. Water should be freely given during the growing and blooming season. Let the manure in all cases be well rotted, and dug into the soil.

It will pay to give a little extra attention to newly planted roses. Care in childhood often determines the constitution of the man, so it is conducive to a healthy plant. To those who love flowers, there is an interest felt in the simplest operation of culture, for he who plants a tree adopts it as his own, and delights in administering to its wants.

Sweet Peas.—An ounce of sweet pea seed will plant a row 10 feet long. Plant in trenches; cover at first with only an inch of soil, then as the plants grow, fill in one inch at a time. Put them in as early as possible. Water well each night, rich soil and blossoms picked daily is the whole secret. Sparrows are fond of peas when just peeping up. A shot gun is good for sparrows.—(N. S. Dunlop, Montreal, Que.

If you cannot have suitable windows, have plants suitable for your windows.—(Mrs. W. J. McLenahan, Appleby, Ont.

HOW TO MAKE CITY GROUNDS ATTRACTIVE*

MAYOR J. A. ELLIS, OTTAWA, ONT.

WHEN planning the improvement and beautifying of the grounds surrounding a city residence, the first thing to take into consideration is the natural surroundings. The object should always be to improve them where they can be worked into the general plan, and hide the disagreeable necessary features, such as sheds and fences, which are always to be found in conjunction with city residences.

I am strongly opposed to that kind of landscape gardening which consists in planting a number of trees, shrubs and flowers at random, or dotted all over the grounds, without any regard to what the general view will be when they have grown up. The object should be to make as perfect a picture as possible, one in which the different trees, shrubs, flowers and the grass will form a part, but which when completed and placed in the proper positions will make a harmonious whole. A sure guide is one's own eye. Often we come across grounds of which we say these are lovely or beautiful, but what is lovely or beautiful with one set of surroundings may be quite otherwise in different surroundings. It is difficult, therefore, to lay down a hard and fast rule for all cases, as each place will require somewhat different treatment from any other.

The first thing we must consider are the natural defects, such as sheds and fences, which we wish to hide. These should be hidden by trees, shrubs or climbers. Next, we must consider our natural advantages, such as the boulevard and any trees or shrubs there may happen to be about the place. Having got the frame of our picture, we must decide upon how we will lay out the picture itself.

The Home of Mr. Jas. Thorne, Ottawa, Ont.

I am decidedly in favor of always having a foreground of lawn. The boulevard can often make part of this lawn and it is desirable in many cases to carry it along the sides of the house. At the back of the lot trees or tall growing shrubs should be planted, and if there is a fence climbers might be grown against it.

We have now got our background, the front of our picture, and the sheds and fences taken care of. What remains to be done is to fill in between these to the best advantage to complete the picture. The tallest shrubs should always be planted at the back, and everything gradually graded from the back and sides to the front. Every-

*Extract from an address delivered before the Ottawa Horticultural Society.

thing should be so arranged that none of our trees, shrubs or flowers will be hidden but yet so they will blend together. The disagreeable surroundings must be hidden. We want a complete picture which will give several different and pleasing views from different standpoints.

I am a strong believer in the massing of shrubs and flowers with open spaces from the front. Many a garden is spoiled by dotting them here, there and everywhere, so that wherever the eye rests there is nothing but a conglomerating of plants and flowers.

LEAVE PLENTY OF SPACE.

One great mistake often made is to have the trees in front of the house and grounds too close together. The reason is simple. When the young trees were first planted they were planted thickly in order to get shade right away. After a few years they grow up, and in many cases it would be far better were some of them cut out. From 20 to 25 feet is little enough for a well grown maple, for example, and it is wonderful how vastly improved most trees are when given plenty of room. When the trees in front are too close together the grass on the lawn does not get sufficient light and air, nor do shrubs and flowers which may be near them. Leave sufficient space between the trees that one may see between them the beauties of the grounds. The best trees for street planting in Ottawa are the sugar maple and elm. The soft maple and the red maple are almost as good.

There are very few good climbing vines which are perfectly satisfactory in Ottawa. The climate in winter is too severe for most of those which do very well a little farther south. For instance in Toronto Boston Ivy does excellently, but in Ottawa it very frequently kills down to the ground in winter. This is a great drawback because after killing in this way it takes the best part of the summer to attain its former growth and vigor.

The common Virginia Creeper is an excellent vine in many respects, but it too has one drawback, and that is its liability to the thrip or green fly, which often nearly destroys the leaves in August or September and makes it have a very ragged appearance, just when it should be at its best. Probably the best climber for Ottawa is a species of Virginia Creeper which is native to Ontario and is to be found growing wild around Ottawa. This has all the good qualities of the ordinary Virginia Creeper, clings much closer to brick, wood or stone, needs no training or fastening up, and above all is very little subject to thrip. It is being disseminated by the experimental farm.

Other good climbers are Dutchman's Pipe, Clematis Jackmanii, and Honeysuckles. Several varieties of roses can also be used as climbers, particularly the Crimson Rambler. Climbers can be used to grow against and hide fences and sheds, they can be trained up verandas and porches and against the sides of the house itself.

(To be concluded in June issue.)

SWEET PEAS IN THE GARDEN

R. B. WHYTE, OTTAWA.

SOW sweet peas as soon as they are received and where they will get plenty of sun and air. Do not plant where they will be shaded by trees. They do not bear many flowers if in a shady place. If you can, make your rows run north and south.

If you have good garden soil no special preparation is necessary. Spread about two inches of rotten stable manure over the surface, if you can get it; dig it in deep; it should be covered six inches deep so that none of it can touch the seed. Stretch a string the length of your row so as to make it straight, then with a hoe make a trench

beside the string about four inches deep, drop the peas, one at a time, about two inches deep.

When they are in, draw back into the trench enough earth to cover the seeds two inches. With your foot press lightly along the row so as to bring the earth into close contact with the seed. If the soil is very heavy or clayey that is deep enough to cover the seed; but if light and sandy, when the plants are about four inches high, draw in over the roots another inch of soil, and if very sandy fill up the trench to the top.

If your soil is very poor and sandy it will pay to take a little more trouble in preparing it. Dig a trench a foot deep and the same width. In the bottom put four or five inches of manure, cover the manure with three inches of the top soil, tramp firmly so that the seed bed will not be too porous. After tramping down, spread an inch or two of loose soil on which to plant your seed. Sow the seed, as directed above, filling in the trench as the plants grow, until full.

THE BACK YARD BEAUTIFUL

J. M. HULL, HAMILTON, ONT.

MY garden is 25 feet by 60 feet and was very hard clay. To improve it the first consideration was to have a good lawn, which should be in the center, and graded with a slope so as to carry surplus water away.

Having accomplished this the next step was to beautify the boundaries, such as fences, walls and outbuildings. I dug borders three or four feet wide along the fence and enriched it with good soil to a depth of 18 or 20 inches. Where space is limited no trees or shrubs should be planted on the lawn. All planting should be done in the border.

Front of Mr. Hull's House

In my garden are grape vines, Virginia creeper and honeysuckle, clematis and rambler roses, which are perennial, and improve each year. I have annual vines, such as morning glory, scarlet bean, madeira vine and nasturtium, which grow quickly and soon cover a fence.

A Clump of Iris in Mr. Hull's Garden

Next to the vines I place tall plants, such as hollyhocks, sunflower, native asters, phlox, valerina, achillea and golden glow. The last named is a grand plant to hide a fence. It multiplies rapidly and is very hardy. In front of these iris, coreopsis, marigolds, snapdragon and zinnia are planted.

The border or edge has white candytuft. The garden is planted mostly with hardy plants, which are more satisfactory than annuals, and improve each year.

The banking of the foliage against the foundation, as shown in the illustration of the front of house, forms a connecting link between house and ground and gives the appearance as if the house grew there. The vines used are Boston ivy and pink rambler, which shows in bloom. It is not quite as grand as the crimson rambler, but is very pretty when in full bloom. The shrub in bloom is dentzia, Pride of Rochester, a double white and very beautiful. The other shrub is spiraea Van Houttei, one of the best shrubs, and grand when in bloom. The under planting is filled in with hardy ferns and pansy, which grow very well, as they are planted on the north side of the house.

The clump of iris is the florentina, a very sweet scented white, tinged with pale blue and yellow. The dark flower is a rich purple self-color. They make a lovely combination, as they bloom at the same time. I consider these two the best of German iris. Every garden should have at least a variety

A View in Mr. Hull's Garden

of these flowers, as they are very hardy and beautiful.

THE SPRING CARE OF ROSES *

W. G. BLACK, OTTAWA, ONT.

SPRING is the proper season to prune roses, though with some plants I cut back after the first bloom in July to obtain a crop of bloom in September. In speaking on this subject, the first question is, why is pruning necessary? Why should not our rose trees grow as fine and large as they will?

The answer is to be found in the manner of the natural growth of the rose. By watching an unpruned rose tree it will be found that first strong shoots flower well the following season, but next year another strong shoot starts considerably lower down, and this soon absorbs the majority of the sap, and eventually starves the original shoot, and is itself starved in succession by another. A rose in the natural state has this happen every year, and this is one of the first reasons why pruning is necessary.

The objects of pruning are to maintain the life and strength of the plants, and to give more vigor, color and substance to the flowers, because there must be a considerable amount of strength and sap reserved for each bloom or some rose will not fully show the true colors. Each rose, in itself, must be a study for the pruner's art.

METHOD OF PRUNING.

The first care should be to cut out dead wood, and wood, no matter how thick or old, which is becoming weakly, in comparison with other stronger shoots. We should always cut back to the bud that looks outwards, and take care to see that the centre of the bush will not be too crowded, so that it can have air. Misplaced shoots, in the middle of the plant, should be cut off at the bottom. It may also break your heart to cut away some handsome branches, but it has to be done.

THE GUIDING RULE.

The answer to the question, how many buds are to be kept on each shoot, is to be

* Extract from an address delivered before the Ottawa Horticultural Society.

found in the golden rule of pruning, that more buds are to be left on the strong shoots, and less, in proportion, on the weak ones. Like Darwin's law of the survival of the fittest, you leave the strong plant long and cut away nearly all the weaker ones. The strong grower is capable of supplying several buds on each shoot with a sufficiency of sap for good blooms, and if a due number be not allowed the shoots will either not flower or will produce coarse and ill shaped blooms. In proportion as a plant is weakly in growth, fewer buds should be left, because there will be only sufficient sap for one or two buds. The more a shoot is cut back the longer will be the new growth. To get rid of the insects that trouble rose bushes, they require to be sprayed in spring with a solution of whale oil soap, or handier, "sulpho-tobacco soap," and a firstrate thing is to turn the hose on and spray them well and frequently with cold water.

Establishing Lilies

R. B. WHYTE, OTTAWA, ONT.

Could Mr. Whyte, whose garden was described in the March Horticulturist, tell me about establishing lilies. I know many amateur growers have failed. Of the last lot I got from Vermont none grew. I never have succeeded in establishing even one lily and would be glad if I could.—(Mrs. Rudolf, Seaforth, Ont.

Lilies succeed best when planted in a well drained, sandy loam, with a gravel or sand subsoil. As they should be planted deep there should be at least 12 inches of good fertile earth above the subsoil. Many growers fail from planting too shallow. The small bulb varieties like Tennifolium, Martagon and Superbum, should be planted about six inches deep, while the larger bulb sorts, like Croceum, Auratum, Excelsum, Longiflorum, etc., should have not less than 10 inches from the top of the bulb to the surface.

Lilies should be heavily mulched during the winter. As soon as the ground freezes cover with three or four inches of rotted stable manure, and over that six or eight inches of straw or light manure. Even with the greatest care many of the most beautiful forms do not become established. The Auratums, Brownii, Longiflorum, Krameri, Lennifolium, Pardalinum, and sometimes the Speciosums die out after two to four years' blooming and have to be replanted, but there is a long list of varieties that are perfectly hardy and easily grown if properly treated, including Proceum, Martagon (purple and white), Superbum, Candidum, Tigrinum, Excelsum, Hansoni, all the elegans varieties, of which Citrinum, Incomparable and Houtti are the best, all the Umbellatums, the best of this class I have grown are Tottenhami, Sensation, Grandiflorum and Aurantiacum. A very beautiful and hardy lily is Pomponium Verum, the most brilliant red in the family, but unfortunately the odor is very offensive.

Growing Sweet Peas Continuously

PROF. H. L. HUTT, ONT. AGRI. COLLEGE.

What fertilizer should be used to permit the growing of sweet peas in the same ground year after year. The ground is loam above with clay one and a half feet below ?—(G. T. Clarkson, Toronto.

It is best, if at all possible, to avoid growing sweet peas year after year on the same ground. Where attempted not only the growth of the vines but the quality of the flowers deteriorates. If the ground is so small that the location cannot be changed it might be advisable to change the soil by digging up a trench one and a half feet deep and about two feet wide and filling in with good fresh soil, which might be obtained from some other part of the garden.

The best soil for sweet peas is a good heavy loam with a fair mixture of clay. It should be enriched with a general fertilizer, such as well rotted manure, or if this is not obtainable, it would be well to apply a small quantity of some complete fertilizer, that is

one providing nitrogen, phosphoric acid, and potash. As a rule the sweet pea does not require much nitrogen, as it is able to take its supply from the atmosphere. It requires a liberal amount of potash and some phosphoric acid, which can be supplied in an excellent form in unleached wood ashes. In a fairly rich garden soil a liberal application of wood ashes would probably be all that is required.

Growing Early Tomatoes

GROWING of early tomatoes and other vegetables was the subject of an address delivered recently at Leamington by Professor Taft, superintendent of farmers' institutes for the State of Michigan.

Those who live along the north shore of Lake Erie, according to Prof. Taft, should have every advantage in growing early vegetables and the best varieties of fruit. The growing of early vegetables or the forcing of vegetables in winter should be very profitable.

Crops, especially those grown out of season, are peculiarly sensitive to injury or disease. If the weather is too warm or there is a defect in the drying of the soil, or if the temperature is too cold, the growth is checked and the plant injured. The right kind of plant food should be provided and the right quantity. The great danger is in giving too little food, but sometimes too much fertilizer or manure is used and the plant makes an abnormal growth.

Stable manure well rotted is perhaps the best food that can be provided for vegetables, but for fruit growing much more care should be taken in supplying plant food. Wood ashes is one of the best fertilizers for fruit trees. The great trouble is that ashes do not contain nitrogen, and if used for vegetable growing, good partly decomposed manure should be mixed with the ashes. In the growth of vegetables for profit fertilizers must be used in most soils. Potash and phosphoric acid and nitrogen form component parts of the best fertilizers. Thus a grower who understands the elements in the soil, and who knows what his land requires, and is willing to expend a little, can generally be successful. Many of the fertilizers on the market contain a considerable percentage of valueless elements. The man who is able to get his goods on the market the earliest is the one who makes the money. Push the vegetables as fast as possible. Don't neglect them.

The best early kind of tomato is the Earliana. For late tomatoes or for factory use the Stone has given the best satisfaction. It is imperative that the seed for the early kinds should be sown before March 1 in suitable houses, with the right soil and plenty of water, and an even temperature of about 60 degrees. The plants should be transplanted two or three times and should be well filled with fruit before setting out.

The stalk should be tied to a stake and trimmed to a single stem, as the fruit will ripen earlier and the returns be better. Too much manure must not be used, and potash and phosphoric acid should be added to check the tendency to too much growth of the plant.

Castor Oil for Plants

GEORGE VAIR, TORONTO, ONT.

A LADY last year came to me with a rubber plant that wanted doctoring the worst way. It was in a sorry plight. I found the soil full of castor oil, which she confessed she had put on, a drop or two once in a while. She also had not hesitated to pour on a little weak tea.

I said I would draw the line at castor oil, but I would not mind the weak tea, if it was just the strength she gave her husband when he happened to be a little late. It is singular, sometimes, the remedies some people try on their flowers.

THE MUSHROOM BED

PERCY CASBURN, DESERONTO, ONT.

THE first step in making a mushroom bed is to collect enough horse manure. This should not be allowed to become wet and should be put under a shed to heat. Turn it several times to prevent drying.

Prepare the beds by placing boards 14 inches deep around the sides. Two or three feet will be wide enough for the beds. Put the manure in and pack firm. When the temperature is down to 85 degrees break the spawn into pieces about two inches square, make holes and plant the spawn 12 inches apart all over the bed. Cover the spawn and beat firm.

After the spawn has been in a week, cover with two inches of good loam and beat firm and smooth. Water carefully with a fine spray, with water the same temperature as the bed. Do not allow the bed to become dry, as after the mushrooms appear, which will be in about six weeks, no water can be given. If watered then the mushrooms damp off.

I generally start my first beds in early April. Where there is artificial heat the beds can be made at any season. Mushrooms require a temperature of 45 to 50 degrees.

I have had beds bearing until September. If artificial heat is applied, and a mixture of dried cow manure given with a little fine soil, covering the bed with half an inch of the preparation, and a good watering is given, a second crop will soon appear. The best soil for covering a bed is good sandy loam, such as is used for potting plants.

Asparagus roots should be planted at intervals of 12 inches in the row, the crowns four to six inches below the surface. Spring is the preferable time. Two year old roots should be used. It is not desirable to cut asparagus for the table until the second season, or two full years from planting, as this interval is necessary for the proper establishment of the bed.

Any soil that will produce a good corn crop will make a good strawberry bed.

The Mushroom Bed of Mr. Percy Casburn, Deseronto, Ont.

A MARKET GARDENER'S GARDEN

"I GAVE up growing raspberries and strawberries," said Mr. Thos. Finucan, of Toronto, to a representative of The Horticulturist, "and am giving my attention principally to vegetables. There are so many brickyards in our neighborhood that men and boys can find employment at higher wages than we can afford to pay. I have 14 acres, three of which are orchard. When my trees were small I found it a great advantage to grow beans in the orchard.

"I grow five or six acres of early potatoes, which are sprouted first in beds under glass. They are planted the end of March and transplanted about the middle of April, when the sprouts are three or four inches long. They are covered to avoid frost. I have had them ready for market by June 20, and they come in between then and July 1. They bring $1.50 a bushel at that time. About two acres are sprouted for very early potatoes in the way indicated, and early potatoes only are grown.

"I manure heavily and aim to secure early vegetables. Radishes are a specialty. The seed is sown broadcast, harrowed and rolled. The grub is kept down by the use of lime or plaster. I thin out as they are ready and keep sowing every 10 or 12 days. My land is heavy and I keep growing all season. The Scarlet Turnip and the Scarlet White Tip are the two best varieties.

"I grow a good many onions—Yellow Globe and Yellow Danvers principally, with a few of the Prize Taker. They are started in the greenhouse and transplanted into drills six inches apart, 18 inches between drills. Nitrate of soda is good for onions, When they are three or four inches high I sow it along the drills and cultivate it in, using a hand cultivator.

"Stable manure is used principally for the vegetables. I can get all I want for ten cents a yard. What I get at the east end is good because of the system of draining the water off. A little artificial fertilizer, bone dust, etc., is used, and sometimes a little land plaster. My tomatoes did not do as well as usual last year. They rotted, as there was too much rain, and a hail storm cut them up. I do not trim the vines. My vegetables are sold principally to the butchers."

THE HOME VEGETABLE GARDEN*

MRS. MARGARET CLOSE.

A SURFACE that slopes gently to the south, a light sand loam, and a good fence to keep out chickens are needed for the home vegetable garden. The soil should be broken fine, as deep as the plant roots may be expected to grow. Fertilizer, as well rotted barnyard manure, is required. Lime may be used with good results. It is beneficial on both clay and sandy soil, as it corrects acidity, makes clay soil more friable and holds sand closer together. Wood ashes are a ready source from which to obtain potash. I have used them with advantage on all kinds of soil and all kinds of vegetables and fruit.

The time for planting can only be learned by experience. The blooming of the peach is a suitable time for seeds that will resist a slight frost, such as peas and spinach. When the oak leaf breaks from its bud start beets, turnips, corn and tomatoes. Seeds that thrive only in warmer soil, as beans, cucumbers, watermelon and squash, may be planted when the blackberry is in blossom. The soil should be moist when the seed is put in.

Seeds require less depth of cover in spring than in summer. If beet, carrot, parsnip or beans are soaked over night they come up a day or two earlier. The best time for

* Extract from a paper prepared for a Women's Institute meeting.

transplanting is when the weather is cloudy or rainy. I prefer the evening. Fine earth should be put closely round the roots, and if the sun comes out hot they should be shaded. I use large leaves, or paper held in place by stones. Some clip off half the leaves before planting. Cabbage require rich land, well worked, and abundant light and warmth.

I once asked a gardener his method of dealing with the root maggot. He said, "I go out in the morning early, and wherever I see a plant cut off I search for the maggot and kill it. I have used black currant leaves to wrap the plant loosely just above the roots. For the cabbage worm use kerosene emulsion. Hot water dropped on the worm will kill it."

As soon as the rain is over the atmosphere is free of moisture and evaporation from the soil sets in. If the tubes formed by the pores are broken evaporation from the ground is much lessened. This can be done with a rake or other implement. It will also kill the weeds. In watering, the earth should be thoroughly wet, so the moisture will get to the lower and outer roots of the plant. The surface should be broken as soon as dry enough to work. If watering is necessary always do it in the evening.

A warm, light sandy soil, well supplied with humus, is recommended for cucumbers. Some start them in hot beds on upturned pieces of sod, six inches square, covered with rich soil. I never make high hills for cucumbers or anything else. I prefer level ground. Hills might do if it were very wet, but in dry weather they dry out, and if there comes a rain it runs off. Deep preparation and plenty of manure will make good potatoes on almost any soil. They require a temperature of about 60 degrees and thorough cultivation. I always set them deep in the ground so the roots will not dry out. I have had them so firmly set in the ground that I found it needed a good pull to get them out in the fall when the frost came.

THE CULTURE OF POTATOES*

W. T. MACOUN, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

IN order to obtain heavy yields, potatoes should be kept in good condition at planting time; the more dormant the better. Potatoes should be kept near the freezing point.

At the Experimental Farm at Ottawa experiments were tried for a number of years to determine what kind of sets were best. Large whole potatoes, medium sized whole potatoes, small potatoes, half potatoes, stem ends, seed ends, sets with one eye, two eyes, and three and more eyes were tried, even potato peelings being given a test. The largest crop was obtained from large whole potatoes, but the most economical kind of set was found to be one with three or more eyes and a good amount of flesh. Growers lose many bushels of potatoes every year from using too little seed. It is not an uncommon thing to find fully 10 per cent. of the hills in a field of potatoes missing, caused by the failure of the seed to grow, the reason usually being that either the seed has dried up before or after planting, or that the single eye, which is often all that there is to the set, has not sprouted.

Our practice is to make four sets of a medium sized potato, cutting it lengthwise and then across. The practice of using small potatoes for seed should be discontinued. Although fairly good crops are obtained from small potatoes it stands to reason that immature potatoes, as small potatoes really are, will not give as good re-

* Continued from the January issue.

sults as sets from thoroughly matured, medium sized potatoes. The continued use of small potatoes is sure to reduce the crop.

THE PLANTING.

The soil being in good condition and the seed cut, the next consideration is the planting. Except for very large areas where planters are used, the best practice is to open the furrows with a double mold board plow. At Ottawa it has been found that rows two and a half feet apart is an economical distance. Experiments were tried in planting the sets 18, 16, 14, 12, 10 and 8 inches apart in the rows, but the best distance was found to be 12 to 14 inches apart. Experiments have also been tried in planting the sets one to eight inches deep, to find the best depth, and it has been found that for six years the potatoes planted in sandy loam soil one inch deep have given the largest yield. It is believed that the reason for this is that the soil is warmer near the surface and the sets sprout sooner, thus getting the plants growing thriftily while there is plenty of moisture in the ground. This shallow planting also comes nearest the conditions of the potato in the wild state.

Although sets planted one inch deep have given the largest yields, yet this is not the most economical way to plant them, as it is necessary to destroy the weeds in order to ensure a large crop of potatoes. For this purpose it is necessary to harrow the field just before or as the plants are coming up. If the sets were only one inch deep they would be dragged out, hence four to five inches deep has been found to be the most economical depth.

The potatoes are covered with the double mold board plow, and when the weed seeds have germinated the land is levelled with the smoothing harrow, thus killing myriads of weeds which would require hand hoeing if left until the vines grew up. If the soil gets two harrowings to kill weeds, so much the better.

As the conservation of moisture is very important in obtaining a large crop of potatoes, the soil should be kept thoroughly cultivated as soon as the potatoes are up enough to show the rows. The first one or two cultivations should be deep in order to loosen the soil, but the last two or three should be shallow to avoid injuring the roots and tubers. From four to five cultivations should be given during the season. Prof. Roberts, late director of the Experiment Station of Cornell University, found that the crop increased in proportion to the thoroughness and continuance of cultivation. At the Central Experimental Farm the potatoes are grown according to the level cultivation, the plants not being hilled, and this method has been found very satisfactory. In soils which are not quite loose hilling up may be preferable, but when the plants are hilled up there is more exposure to wind and the soil dries out sooner than with level culture.

(To be continued)

Early Potatoes.—"There is no reason why the market gardeners about Toronto should not make money raising early potatoes," remarked Mr. Charles Topping to a representative of The Canadian Horticulturist. "The freight on early potatoes brought from a distance makes them come high. California potatoes cost five dollars a barrel, containing three bushels, *i. e.*, $1.67 a bushel."

Radishes will thrive in any good soil, but to be crisp and tender must be grown quickly. If a continuous supply is wanted make sowings every ten days or two weeks.

The advantages of sod mulching are: 1. To save washing on hilly ground. 2. To save depletion of soil. 3. To make the soil richer. 4. To conserve moisture by shading the soil.

The Canadian Horticulturist

The Only Horticultural Magazine in the Dominion.

OFFICIAL ORGAN

ONTARIO FRUIT GROWERS' ASSOCIATION.

THE POMOLOGICAL AND FRUIT GROWING SOCIETY OF THE PROVINCE OF QUEBEC.

PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATION.

ONTARIO VEGETABLE GROWERS' ASSOCIATION.

H. Bronson Cowan, Editor and Business Manager.

J. J. Bell, Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance entitling the subscriber to membership in the Fruit Growers' Association of Ontario and all its privileges, including a copy of its report. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE FRUIT DIVISION.

Leading officers of every provincial fruit growers association in Canada, including British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick and Prince Edward Island, have placed themselves on record as being strongly opposed to the chief of the fruit division being made subservient to the dairy commissioner. A number of these associations have passed resolutions protesting against the arrangement that has been made by the Hon. Sydney Fisher.

In his explanation in the House of Commons Mr. Fisher stated that the work of the fruit division would not be restricted, as its chief would have the same staff and would perform the same duties under the dairy commissioner as when he was under Prof. J. W. Robertson. This statement has not satisfied the fruit growers. Prof. Robertson had direction of not only the dairy and fruit divisions but of the live stock and seeds as well. Since Prof. Robertson resigned a commissioner has been appointed for live stock, one for dairying, and one for seeds, but the fruit division has been overlooked and placed under the dairy division. To Mr. Ruddick's credit it can be stated there is nothing to indicate that he sought an appointment so foreign to his regular line of work.

Fruit growers feel that while the chief of the fruit division may have the same powers he formerly had he cannot be expected to take the same interest in his work or to prosecute it with the same zeal that he would were he in sole charge and directly responsible to the public as well as to the minister of agriculture for its success. It has been intimated that there is not enough work to warrant the appointment of a fruit commissioner. There cannot, then, be enough work for the chief of a fruit division. The rapid growth of the fruit interests warrants the appointment of a fruit commissioner, who, if he is the proper type of man, will soon find plenty of work to occupy his attention. "Surely," as Mr. Brandrith writes from British Columbia, "Hon. Mr. Fisher will not go in the face of a united country and maintain an appointment that is unsatisfactory to those whose interests he is there to look after."

THE PROVINCIAL SHOW.

In deciding to continue the Provincial Fruit, Flower, Honey and Vegetable Show at Toronto while making a special grant for the holding of an earlier show at Hamilton for the fruits and flowers which cannot be shown at the later show at Toronto, the Department of Agriculture has acted in the interests of the greatest number. The management of the show held at Toronto last fall for a start made a decided success of the venture. The various organizations that were interested in it worked together harmoniously and are in a position to do much better work this year, especially as Massey Hall has been secured for the next show. It would have been unjust to have taken the show out of their hands.

On the other hand, Hamilton is in an excellent position to hold a splendid show for early fruits through which the interests of the amateur flower grower as well can be promoted. If a horticultural convention is to be held again next fall it may prove advisable to hold it in connection with the Hamilton show, as those who attend the convention are interested in amateur and not in professional flower growing. The Hamilton show can be made a big affair. Possibly the Provincial Vegetable Growers' Association may decide to hold its annual convention at the Hamilton show, which would add to its importance.

Several interesting articles from papers read at meetings of the Ottawa Horticultural Society, and one read at a meeting of the Toronto society, appear in this issue. Every month numerous papers and addresses of interest and value to amateur horticulturists, are presented at meetings of horticultural societies. Were the officers of societies to see that copies of

these papers or the originals were sent to The Canadian Horticulturist their publication would add to the interest of our floral department and the papers would be of value to many people who would never otherwise hear of them. The printing of these papers would, also, serve to draw attention to the excellent work being carried on by many of our horticultural societies. Send in the papers.

Again this month have extra pages been added to The Horticulturist, this time ten, making this the largest issue we have ever published. This has been made possible by the great increase in advertisements. Very soon we hope it will be possible to continue these pages in The Horticulturist permanently, which will mean that the various regular reading departments can be enlarged and strengthened in other ways. Our readers can be of great assistance by buying from our advertisers and by telling them that their advertisements were seen in The Horticulturist. A glance through our advertising columns will prove them to be as interesting in their way as the pages of reading matter. Look them over and see if this is not the case.

Our handsome new offices in the Manning Chambers, Toronto, were greatly improved during April by lovely floral donations from friends. Two splendid ferns of the Nephrolepsis Bostoniensis and Nephrolepsis Exaltata varieties and a Kentia Belmoreana palm were given by Mr. Thomas Manton, of Eglinton, of which the Bostoniensis fern is particularly beautiful. It occupies a prominent position at the end of the editor's desk. Some lovely cut flowers were also sent in by Mr. Manton. Even roses have not been lacking, as a large boquet, containing some grand specimens of the Bride and Bridesmaid varieties, was received from Mr. A. J. Frost, of Toronto. Truly they were welcome and the kindness of the donors is appreciated.

The fruit growers of the Niagara district know what they want and they do not hesitate to ask for it. During the past two months they have had strong deputations wait on the Hon. Nelson Monteith, Minister of Agriculture, to ask for assistance in holding a series of meetings, for the conduction of special spraying demonstrations by Prof. Lochhead, for the establishment of a horticultural college and experimental farm, and for an annual grant for the Niagara District Fruit Growers' Association. A deputation representing the Ontario Fruit Growers' Association also waited on the Department to ask for aid in forming cooperative fruit growers associations and to have the act, which provides assistance in the erection of cold storage houses, extended for several years. It is evident the fruit growers are alive to their needs, which is a good sign.

Owing to the rapid increase in the circulation of The Canadian Horticulturist and to the many requests that have been received for back copies it will be impossible for us to furnish any more copies of the January, March or April issues of this year to new subscribers. Slightly over 400 new subscriptions for The Horticulturist have been received during the past month. These and numerous requests for sample copies exhausted the supply of the April issue early in the month, although several hundred extra copies had been ordered. While the rapid growth is encouraging it is difficult, sometimes, to provide for it in advance. If any of our readers can furnish us with spare copies of the January, March and April issues their kindness will be greatly appreciated.

A reader has called our attention to an error which occurred on page 102 of the March issue by which Mr. W. H. Bunting, of St. Catharines, is made to speak of a dust spray composed of 30 pounds of lime, 15 pounds of sulphuric acid and two pounds of sulphate of copper. Instead of sulphuric acid it should have read sulphur. It is just about as difficult for us to prevent occasional errors among the thousands of words that appear in each issue as it is for a fruit grower to thoroughly control all his insect pests. Some of them get by us in spite of our best efforts. We are, however, doing our best to improve.

NEW ADVERTISERS.

The following new advertisements appear in this issue of The Horticulturist:

Adams Furniture Co., Toronto.
R. Olmstead, Hamilton.
Elwood Tatum, West Branch, Iowa.
Ontario Agricultural College, Guelph.
J. H. Lock, Toronto.
Colling Manufacturing Co., Toronto.
Canada Camera Co., Toronto.
Preston Metal Shingle and Siding Co., Preston.
McWilliams & Everist, Toronto.
Dawson Commission Co., Toronto.
Pilkington Bros., Toronto.
A. M. Smith, St. Catharines, Ont.
Superior Manufacturing Co., Toronto.

The result of cold storage appliances on ocean steamers is well shown by a letter received by Messrs. McIntyre & Barnard, of Niagara-on-the-Lake, who recently shipped 450 barrels of apples to Liverpool on the steamer Lake Champlain. The consignee writes as follows: "The apples reached us in almost perfect condition, there being only five barrels that were in any way slack or open. The sale was the best that has taken place for the class of fruit in Liverpool this season, and we congratulate you on it." The net proceeds from the shipment amounted to about $1,500, indicating the high prices that may be realized for Canadian apples in the British market when properly packed and shipped.

The fruit growers of Owen Sound and vicinity have formed a company to be known as the Owen Sound Fruit Growing Co., for the purpose of adopting the cooperative system in growing, packing and shipping fruit.

FRUIT TREES AND BUSHES HAVE WINTERED WELL

Reports which have reached The Canadian Horticulturist from the principal fruit districts in Canada show that fruit trees and bushes have come through the winter in unusually good condition. The only loss reported is in Nova Scotia and Prince Edward Island, where the heavy snow broke down some of the trees and where mice have done some damage.

In the leading fruit sections spraying is on the increase. Where fruit is not grown extensively but little interest in spraying is being shown. There has not been a marked increase in plantations in any of the provinces.

EASTERN ONTARIO.

Mr. Harold Jones, Maitland, Ont.: Fruit trees of all kinds have come through the winter in excellent condition. Apple trees especially look bright and healthy, and the fruit bud is in good condition. With favorable weather the chances are for a good crop. Mice did some damage to trees near fences, but the injury is not serious, a few trees having portions of the bark chewed, but hardly any girdled. Strawberries are coming out bright and healthy, no winter injury even in plots that had no covering. There is practically no planting being done in this vicinity. The farmers and fruit growers are discouraged owing to losses and low prices for their fruit the last two or three years. Spraying is also being neglected in some cases. There are some of our most careful growers spraying as carefully as ever, but the tendency is to neglect the work.

THE GRIMSBY DISTRICT.

Mr. Linus Woolverton, Grimsby, Ont.: The past winter has been a favorable one for fruit. The cold has not been severe enough to injure the fruit buds, and there has been an excellent covering of snow to protcet the roots of trees and fruit crowns of strawberry plants. Indications point to an excellent fruit year, giving good profit to the fruit grower if better methods of sale can be found. Planting is always going on in the Niagara district, but not of apple trees, especially on its rich sandy loam, where even the Baldwin goes too much to wood to produce abundant crops. A great many apple orchards are being grubbed out on this account. Intelligent spraying is being practised, and power sprayers are coming into common use.

NEAR WINONA, ONT.

Mr. Murray Pettit, Winona, Ont.: Everything, including small fruits, has come through the winter in first-class shape. Prospects are excellent. The ground was covered with snow, and strawberries were well protected, and there has been little freezing or thawing since the snow left to cause injury. It has been several years since fruit came through the winter so well.

AROUND ST. CATHARINES.

Mr. W. H. Bunting, St. Catharines, Ont.: Winter has been favorable for all kinds of fruit, and except where vitality has been weakened by San Jose scale or other causes trees are in good condition. Prospects are for a good crop. Not many apples or grapes are being planted, but there is a considerable increase in peaches and cherries. Spraying is on the increase.

Mr. R. F. Robinson, St. Catharines, Ont.: Trees, vines, bushes and strawberry plants have wintered extremely well, as the wood was well ripened last fall, especially where the land was plowed early and a cover crop put in. Most varieties are sufficiently full of fruit buds for an average crop. Strawberries wintered well, but did not thrive last year sufficiently to make a very big crop, and the acreage was lower than usual owing to the difficulty in securing plants last spring. If the rot is controlled in sweet cherries this year there is excellent showing in most varieties. The acreage of fruit in this section is not increasing very rapidly for three reasons: 1. Expense of nursery stock; 2. The ravages of the winter of 1903-4; 3. Anxiety as to the possibility of controling the San Jose scale. Of peaches the Yellow St. John, Niagara, Fitzgerald, Alberta, early and late Crawfords, Toronto and Smocks seem the favorite varieties. Of plums the later varieties such as Coe's Golden Drop, Reine Claude, Monarch and Grand Duke, but not so many Japanese plums as formerly. In cherries, E. Richmond, Montmorency and English Morello of the sour kinds, and comparatively few sweet cherries are being set. The Cuthbert, and where the land is suitable, the Marlboro raspberry. Strawberries, Michael's Early, Brandywine and Williams are the most popular. There is considerable increase in spraying, especially with the lime and sulphur. Practical men now consider it an absolute necessity. However, there is yet room for much more enthusiasm in this cause.

IN QUEBEC.

Mr. A. C. Abbott, Hudson Heights, Que.: Trees, vines and bushes have stood the winter well and are in good condition. The fruit buds indicate an average crop of apples and plums. There are only a few large orchards in this vicinity, and outside of these planting is only done with a view to supplying the needs of the home or the local demand. Apples principally, with plums and a few pears, are the only varieties of fruit planted. Spraying is not on the increase. It is only the larger growers that spray.

PROSPECTS BRIGHT IN NOVA SCOTIA.

Mr. D. C. Crosley, Berwick, N. S.: Apple, plum and pear trees have wintered well, but have been badly broken by snow drifts, and mice caused great loss. Strawberries and other small fruit have wintered better than usual. The prospect is bright, but late frosts may ruin it. Last year's market prices discouraged planting of increase areas. The favorite varieties of apples are Stark, Wagner, Ben Davis, Baldwin, Gravenstein and Bishop Pippin. Spraying is on the increase, many growers believing it to be the only method of securing good fruit.

Mr. A. A. Blight, Waterville, N. S.: On account of the unusual depth of snow quite a percentage of trees were broken down. Mice also caused considerable damage, especially in orchards under sod. Small fruits and strawberries wintered well. Fruit buds indicate a good crop. There is only about 40 per cent. of the average amount of planting, growers being discouraged by low prices last season. The favor-

ite varieties are: Apples, Stark, Gano, Baldwin and Wagener; plums, Burbank; pears, mostly winter varieties. A number are preparing to spray this season for the first time.

PRINCE EDWARD ISLAND.

Mr. A. E. Dewar, Charlottetown, P. E. I.: A lot of trees were damaged by snow, otherwise they are in good condition. There are a few complaints of damage by mice. Strawberries promise well. The season is later than usual. There is an increase in the area planted of fruit, principally winter apples, with some plums and a good many strawberries. More attention is being given to spraying.

The Standard Apple Box.

THOS. BEALL, LINDSAY, ONT.

On page 161 of The Canadian Horticulturist for April I find an article headed "A Standard Apple Box Adopted." I was pleased to learn that its adoption was a certainty and hope that the measurements given may be generally acceptable as a suitable apple box for market purposes. I regret, therefore, to see errors in the first paragraph which may cause some uncertainty about the measurements, and hope it may be corrected at once so that no further cause for discussion may remain.

The errors referred to are contained in the following quotation: "The standard size provided for is 10 x 11 x 22 inches inside measure, or 2,200 cubic inches. It holds one bushel and is equivalent to one-third of a barrel." Now, the measurement given, 10 x 11 x 22 inches, is 2,420 cubic inches, not 2,200 cubic inches, as stated. Then again, if it is intended that the box may be either 2,200 cubic inches (about 18 cubic inches less than a bushel), or may be the measurements as given in the act, which gives 2,420 cubic inches, it is an error to say that "it holds one bushel," for the first is less than a bushel and the latter more. Our standard bushel is a small fraction over 2,218 cubic inches.

As a rectangular box, although measuring an exact bushel, can not contain a bushel of apples because of the loss of space at the sides and in the angles, it is well to have the box a little larger, as has been done in this case to compensate for that loss. A standard apple barrel contains a shade over three bushels, and will hold the contents of three such boxes of apples as above referred to. I think, therefore, that the box adopted ought to satisfy all parties concerned and should not be changed.

Note.—The error referred to by Mr. Beall occurred in printing the figures 22 instead of 20. The measurements of the box should have read 10 x 11 x 20 inches, inside measurement, or 2,200 cubic inches.—Editor.

Cold Storage Buildings.

The Fruit Division, Ottawa, has received an interesting letter from Mr. Albert W. Swalm, American Consul at Southampton, England, in answer to enquiries with reference to the success of the Southampton cold storage buildings for fruit. Mr. Swalm asserts that the cold storage houses have succeeded beyond expectations and it would seem as if such fruits as the Russet, Canada Red, Baldwin and Ben Davis could be kept almost indefinitely. He draws, however, attention to the fact that there was a serious loss in storing bruised and scabby fruit and windfalls. He could detect no great difference between the keeping qualities of the American and Canadian apples.

There was no attempt to store English apples, which he asserts will not likely, under any circumstances, be used for the winter markets. They will go into consumption directly, although many of them are fair keepers and some very fine in flavor. The English apple crop is not likely to show an increase that will in any way interfere with importations from America. The most serious defect that was to be noted in the cold storage stock was the want of care in the selection and grading of the stock that was put into cold storage.

Working of the Fruit Marks Act.

An account of the working of the fruit marks Act was given to the Committee on Agriculture at Ottawa recently by Mr. A. McNeill, chief of the fruit division of the Department of Agriculture. He reported that shippers of apples had observed the law fairly well for the last two years. Last year the apples of 811 shippers were inspected, and 264 were found to have violated some section of the act, but as many of these were careless rather than criminal, he gave the figures in another form. Of this number 153 violated the section regarding marking, and 170 violated the section regarding the grading of fruit, but of those only three violated it a second time. Forty-six were found to have faced barrels too highly, but only four committed the offence a second time. Therefore, Canadian apple shippers had a high reputation for honesty of packing.

Mr. McNeill read an extract from a recent issue of the Market Growers' Gazette, of London, England, with quotations for imported apples. After quoting various kinds of American apples, it referred to Canadian apples as "Canadians, all round, two shillings more." When, as year before last, Canada shipped 1,500,000 barrels of apples, the advantage of two shillings, or even one shilling, a barrel was more than compensation for the slight cost of inspection. Now, several of the states of the United States are imitating our act, but Mr. McNeill doubted if they would be successful, as they had not centralized federal power, as we have in Canada, to make uniform laws and enforce them.

Demonstrations in Spraying.

With a view of demonstrating the effectiveness of the preparations which have been recommended for the control of the chief insect and

fungus pests of the orchard and vineyard, the Minister of Agriculture for Ontario has arranged for a series of experiments and demonstrations at eight centres in the Niagara peninsula. The first round were held April 13-21 at the following places: Mr. Murray Pettit's, Winona; Mr. Ambrose Pettit's, Grimsby; Mr. R. Kelly's and Mr. Bartlett's, Beamsville; Mr. J. Fretz's, Jordan; Mr. George Robertson's and Mr. Pay's, St. Catharines; Mr. Jas. Hutchinson's, Virgil; Queenston and Niagara Falls.

The following substances were used in the plum and vineyard experiments: Copper sulphate, and the lime-sulphur wash on dormant vines, and Bordeaux and soda Bordeaux at intervals during the growing season.

Prof. W. Lochhead, of Guelph, has charge of the demonstrations.

The Price of Tomatoes.

The fight this spring between the tomato growers and the canning factories in regard to the price of tomatoes has to a certain extent ended in a draw. In some sections the growers have given in and have accepted 25 cents a bushel, the price offered by the canners, while in other districts the growers have refused to grow tomatoes for that figure. This has forced the companies to contract with growers living at considerable distances from the factories, with the result that the cost per bushel to the factories will probably be as high as if they had paid the price asked for by the growers.

In a letter received by The Horticulturist early in April from Mr. W. C. McCalla, of St. Catharines, it is made clear that the growers in that section have stuck to their guns. In part the letter is as follows:

For a time it seemed probable that our association members would get contracts totalling 60,000 bushels at 30 cents, and on the strength of this hotbeds were put up and seed sown. Negotiations, however, failed, and as many growers in other districts had contracted at the old price, some of them officers of associations who had pledged themselves not to grow for less than 30 cents, we felt that there was no hope of getting contracts at the advanced price this season. These facts were faced and discussed by our members at a recent meeting. The roll was called and in response every member present (47) reaffirmed his determination not to grow tomatoes for less than 30 cents. Many thousands of seedlings will be destroyed by our members.

While we have not secured the price asked for we feel that by loyally standing together under trying circumstances we have gained much, and are in a good position to continue the effort another year, when, with the aid of a strong provincial association we should be able to obtain our reasonable demands.

THE STAMFORD GROWERS.

The secretary-treasurer of the Stamford Fruit Growers' and Market Gardeners' Association, Mr. Thomas R. Stokes, of Niagara Falls South, has written The Horticulturist as follows:

As regards the tomato situation the Consolidated Canning Company is going to outside places to contract for tomatoes at 25 cents a bushel, supplying crates and paying freight for shipping and in some cases the plants. This must make the price of a bushel of tomatoes 33 to 35 cents. They also pay the weighing. We are wondering what kind of stuff a dead ripe tomato will be after it has been jolted in a wagon and bumped in the cars. It is not likely to be fit to make first class or second class canned goods.

Items of Interest.

The sum of $9,700 has been subscribed for a canning factory at Milford, Prince Edward County, Ont., and Bloomfield, in the same county, is talking of a similar factory owned by a joint stock company of farmers.

The county of Huron is said to lead in the number of apple trees—373,613. Northumberland is a good second with 366,381. Leeds has 93,717 and Grenville 68,145.

A cooperative canning company has been formed to operate at Niagara-on-the-Lake, where the steel works have been rented for this purpose. A new building will be erected in the fall.

California fruit growers are receiving 44 to 57 cents a box for oranges. Every box of Canadian apples, grown, graded and packed with the same care and intelligence as Californian oranges, has brought a higher price than this. It would seem then that a man does not need to leave Canada to do a profitable business in fruit, but Canadians do not yet appreciate the lesson taught to Californians by much bitter experience that it pays to export only the best.

The Fruit Division, Ottawa, has received word from British Columbia that there are very heavy importations of nursery stock coming in this spring; as much as six carloads in a single day was received of Oregon stock, all of which was carefully inspected and fumigated. Mr. Thos. Cunningham, Inspector of Fruit Pests for British Columbia, estimates that there will be 500,000 trees imported and planted in addition to the homegrown stock.

A strong deputation representing the Ontario Vegetable Growers' Association waited on the Hon. Nelson Monteith, Minister of Agriculture, early in April, and asked for an annual grant of $1,000, that arrangements be made to include an exhibit of vegetables in the Provincial Fruit, Flower and Honey Show, and that the professors at the Agricultural College at Guelph be requested to conduct experiments in the growing of vegetables. The deputation was introduced by Hon. J. W. St. John, and received a favorable reception. Mr. W. A. Emory, of Aldershot, Ont., and Mr. Joseph Rush, Humber Bay, Ont.,

the president and vice-president of the association, were leading speakers. Several members of the local legislature acted on the deputation and spoke strongly in regard to the importance of the vegetable growing industry.

In a recent issue of the Maritime Farmer Rev. Father Burke, of Alberton, P. E. I., pays a well deserved tribute to Mr. W. T. Macoun, horticulturist, of the Central Experimental Farm, Ottawa. Readers of The Horticulturist will agree with Father Burke when he says: Mr. Macoun has reached the stature of the best of professional investigators; he can take his place anywhere, and he will take that place and do it credit despite the first impression he gives of great diffidence and shyness in public.

As a result of the use by the fruit division of a power spraying outfit in the neighborhood of Ingersoll last year there will be two power outfits operated by private individuals in that district this season. The spraying is done in very much the same way as threshing is done throughout the country.

Grimsby's Annual Distribution

A committee from the Grimsby Horticultural Society has prepared the following list of premiums for distribution this spring: A new white hybrid perpetual rose, "Fran-karl Druschke." This new hardy rose is of German origin. It has won many prizes and appears to be the ideal hardy rose. Its flowers, which are large, are snow-white in color, with large shell-shaped petals forming a beautiful flower. This plant sold at 75 cents last year.

The other plant for distribution is the Kriemhelde Cactus Dahlia, an exquisite shell pink shading to white in the centre, undoubtedly the finest and most perfect pink cactus dahlia to date. The retail price of this plant last year was 50 cents.

The above two plants and The Canadian Horticulturist are given to members of the society.

Glad They Are Canadians

The Lindsay Horticultural Society had a most interesting lecture given at a recent meeting by Mr. T. H. Race, of Mitchell, who was sent out by the Department of Agriculture for the purpose. The subject spoken on was the social and moral influence of the home surroundings.

The description given by Mr. Race of the Canadian exhibit at the St. Louis fair, and the comparisons he made with other countries made the audience feel proud that they belonged to Canada and that Canadians are doing their mite to build up and beautify Canadian homes. After the lecture Mr. Race answered many questions from members present.—(F. J. Frampton, Secretary.

A Generous Offer

The president of the Cobourg Horticultural Society, Mr. J. D. Hayden, has offered to give $10 for the purchase of flower seeds to be given to the school children. The directors of the society have offered $10 additional for prizes for the best flowers grown from these seeds. Rules governing this competition will be announced later.

In the distribution of flowers and plants to be given away by this society there are four shrubs, including a crimson rambler, Japanese snowball, azalea mollis, and a Japanese pearl bush. There is a choice of four annuals or four perennials, with an additional choice to be made from four vegetables, a new potato, the Naught Six; Leviathan pea, Livingstone's new dwarf tomato, and Evan's Triumph celery.

Reorganization of Brockville Society

A meeting of representative and influential members of the old-time horticultural society of Brockville was held recently to discuss the advisability of reorganization. It was found that if the society was reorganized this year it would not receive the government grant for 1905. Mr. Geo. A. McMullen was appointed secretary-treasurer. Mr. McMullen held the same position in the old society and is an enthusiastic worker.

Although no grant can be secured this year a branch committee was appointed for the purpose of beautifying the town and taking an interest in lawns, flower beds, etc., among the members.

SHRUBS AT 15 CTS. EACH!

Until May 15th we will accept orders for any of the following very popular shrubs, as described in our Catalogue at from 20 to 30 cents each, **for 15 cents each**, not less than three to be ordered in any one collection: Boston Ivy (true) 2 year plants, Weigelas (Fairy Thimbles) pink and dark red, Spireas Van Houttei, Syringas Golden Leaved (new), Hardy Hydrangeas, Deutzias (two varieties, Pride of Rochester and Gracilis or Snowdrop Shrub), Barberries (red berried), Forsythias (Golden Bell Shrub).

This is a great offer and is for first quality stock.

THE WEBSTER FLORAL COMPANY, LIMITED
HAMILTON, ONTARIO.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Niagara Gas Sprayers.

More Ontario fruit growers have purchased Niagara Gas Sprayers this year than ever before. This company has appointed several representatives in the fruit districts who have been very successful introducing this machine. Some of the best known growers in the province are now using it.

In a letter to The Horticulturist Messrs. Blaikie & Freeman, of St. Catharines, give the following list of growers who are using Niagara Gas Sprayers, Messrs. S. E. Fisher, W. O. Burgess, of Queenston; James Titterington, W. H. Bunting, Louth Fruit Growers' Association, R. F. Robinson, C. E. Secord, E. McArdell, T. R. Merritt and F. Blaikie, of St. Catharines; C. M. Honsberger, of Jordan; J. L. Livingston, of Grimsby; Joseph Tweddle, Ira Vanduser and F. Hamilton, of Winona, and F. Fairbanks, of Oakville.

The number of these machines sold in the United States this year is already more than three times as great as the total number sold last year. A number of the state experiment stations have purchased them.

A New Departure for Peterboro.—As a substitute for its annual floral exhibition the Peterboro Horticultural Society will present every member, who becomes such by the payment of $1, with a choice of bulbs, the commercial value of which will be greater than the membership fee. The member is always sure of a prize, consisting of the pleasure he or she can derive from the growth and culture of the flowers.

RUBBER STAMPS

The Superior Mfg. Co., - - Toronto, Ont.

Manufacturers

STENCILS

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents.

REQUIRED BY 2 YOUNG MEN, WORK AT gardening. Five years' first class experience in England. Apply "Benfield," Woodstock, Ontario.

FLORIST BUSINESS FOR SALE IN BEST residential locality in Toronto. Good retail trade, small greenhouse, just the place for a beginner. A bargain if taken at once. Apply, The Canadian Horticulturist.

PLANTS FOR SALE OF THE NEW FIRST Prize Strawberry, of the St. Catharines Horticultural Society. Matilda, 50 cts. per doz by mail, $1 00 per 50 by mail, $1.00 per 100 delivered at express. Address A. M. Smith, Dominion Fruit Gardens, St. Catharines.

KILMARNOCK WEEPING WILLOW

Beautify Your Homes

Our stock of Ornamental Trees and Shrubs consists of only the best

Trees, Plants and Vines

of all kinds.

Write for our beautiful Illustrated Catalogue. Salesmen wanted.

HELDERLEIGH NURSERIES.

E. D. SMITH, - Winona, Ont.

Money Given Free to People who buy Goods from Advertisers in this Issue.

Brisk Demands for Nursery Stock.

Brown Brothers Company, whose model nursery plant at Brown's Nurseries, Ont., was described in our September issue, have finished their spring packing and shipping. Their many thousand customers are strongly complimenting them on their early shipments. Their large, frost-proof storage cellars enable them to handle all their packing under cover, so that they are practically independent of weather conditions and have their stock ready to be shipped as soon as the danger of frost is past.

This not only gets the stock to customers at the proper time for planting, but also insures the trees being in prime condition, for they are under cover from start to finish of the packing work and there is no exposure to sun and wind such as marked the packing of stock under the old methods when trees were trenched in for days and weeks on the open packing grounds. Brown Brothers Company have spent thousands of dollars in perfecting this equipment, and to their well known guarantee of "the best stock that can be grown" they can now add "delivered at the proper time in the best possible condition."

I consider The Horticulturist the most reliable paper on horticulture published in Canada. —(Robt. Davis, Hespeler, Ont.

HAMILTON ORNAMENTAL IRON AND ZINC WORKS

R. G. OLMSTED, Prop. Manufacturer and Contractor

Cast Iron Columns
Lawn and Drinking Fountains
Lawn Settees and Chairs
Flower Vases
Builders' Supplies

Church Pew Ends
Iron and Wire Fencing
Cemetery and Gallery Railings
Cresting
Automatic Umbrella Holders

Store Stools
Sidewalk Lights
Stable Fittings
Hitching Posts
Iron Staircases and General Ornamental Iron Work

PHONE 1601 SEND FOR CATALOGUE ESTABLISHED 1875

121 King Street West. Hamilton, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Spraying Machines.

Another evidence of the prosperity of the fruit growers of Ontario is shown by the large orders for spraying machinery being placed with the leading makers. Among the growers who have purchased from the Spramotor Company, of London, Ont., are Messrs. E. M. Smith, A. Vance Cline, of Winona, and J. W. VanDyke, of Grimsby, who have secured power machines, and Messrs. M. Pettit, E. M. Smith, G. L. Brooke, of Grimsby, Robert Thompson, of St. Catharines, and W. M. Orr, of Fruitland, have purchased cart machines from the same firm. This ought to be a guarantee of the high standard of these machines. The manufacturers claim there are more Spramotor machines used in Ontario than those of all other makes combined.

Fine Dahlias and Asters.—Although Mr. J. H. Lock, of Toronto, has only a very limited space at his disposal and attends to them only in his spare time, he has succeeded in raising dahlias which have successfully competed against those grown by the largest growers in Canada. He also grew the asters which carried off the highest awards at the Toronto Industrial last year. His success as an exhibitor has created a demand for his stock.

Your paper is very valuable to anyone interested in fruit growing.—(F. T. Morrow, Mermaid, P. E. I.

Long Shipments of Nursery Stock.

The Fonthill Nurseries, at Fonthill, of Messrs. Stone and Wellington, have been engaged this spring on the largest packing they have had since they have been in the business. The firm has shipped several carloads of stock to British Columbia, Manitoba and the Territories, and has even had a considerable shipment of stock to Manuchuria, as mentioned in the last issue of The Horticulturist.

The packing operations require a force of between 200 and 300 men. Notwithstanding the severity of the past winter this firm's stock come through in splendid condition, and has given its customers great satisfaction.

Are Your Goods the Best.—Sometimes a grower of fruits finds himself unable to get all they are worth, having to take the flat market price for goods of superior grade. The man who grows a strictly first-class article should brand his package and seek out some reliable fruit dealer or grocer whose business is large enough to take his output. In this way he can command a higher price than by consigning to a general market. An advertisement in The Canadian Grocer assists a fruit grower to find the right purchaser.

The Canadian Horticulturist obtains results for its Advertisers.

Practice with Science.

The Earliest, Best Flavored and Largest Crops of

Strawberries, Tomatoes and Vegetables

are grown by feeding with

Arnott's Complete Concentrated Soluble Manures

MADE IN CANADA

under the supervision of Chemical Experts by

The Arnott Chemical Co.

Agricultural and Manufacturing Chemists

114 Victoria St. TORONTO

ANALYSIS GUARANTEED. BOOKLETS FREE.

Established 1853.

TRY

The Bottomless Plant Box

It is convenient, economical and gives better results than pots. Write for sample and price.

Crates, Baskets, Georgia Fruit Case, Berry Boxes, Etc.

C. W. Van Duzer

Manufacturer of Fruit Packages,

GRIMSBY.

Money Given Free to People who buy Goods from Advertisers in this Issue. See Notice in Advertising Columns.

The Canadian Horticulturist

JUNE, 1905

VOLUME XXVIII NUMBER 6

SPRAYING DEMONSTRATIONS IN ONTARIO

P. W. HODGETTS, B. S. A., ONTARIO DEPARTMENT OF AGRICULTURE.

FOLLOWING the request last March of the Ontario Fruit Growers' Association that the Minister of Agriculture should place a number of power sprayers throughout the province, this matter was promptly taken up by the Department, and after some investigation two machines were placed in operation at Meaford and Trenton respectively. Both these points are centers of large apple growing sections.

According to the report of the Bureau of Industries for 1903, Grey county, in which Meaford is situated, is credited with 352,894 apple trees over 15 years of age and 200,000 under that age. Northumberland county, in which the other machine is operating, possesses 366,381 old trees and 288,669 young ones. These two counties, with the addition of Huron, headed the list for production during 1903, showing a total crop of over 2,000,000 bushels each. It follows that these sections are of great importance to the apple industry, and anything that the Department of Agriculture can do to improve the quality of the fruit shipped therefrom will materially assist those farmers who are striving to make this branch of agriculture successful.

As power spraying machines are of comparatively recent introduction into Canada it was thought wise to test at least two different types this year. There are, perhaps, four types altogether in use in the Dominion using as motive power the gasoline engine, geared direct to a pump, the expansion of carbonic acid gas, the expansion of compressed air, and the wheel-driven pump respectively. Many of these are in operation throughout Ontario, especially in the Niagara district, where the presence of the terrible San Jose scale compels the grower to spray or uproot his trees.

Readers of The Horticulturist are familiar with the well known Wallace, Spramotor, and Niagara Gas machines, which have been illustrated and advertised so frequently in these columns. Each has its strong admirers, and each, I believe, is doing good work. At Meaford one of the Niagara Gas machines, at present manufactured in Buffalo, was placed, while the Spramotor Company, of London, supplied the gasoline outfit in use at Trenton.

The gas machine, a cut of which appears as frontispiece, is run by the expansion of liquid carbon gas. The main tank, which holds the spraying mixture, is closed absolutely tight when filled, and is supplied with agitator, pressure guage, etc., on top. The gas is purchased in iron cylinders containing 25 or 50 pounds under high pressure, and when released slowly into the large tank containing the spraying mixture forces the latter out from the nozzles in a fine mist. By releasing more or less gas the pressure can be varied to suit the will of the operator, and any number of nozzles may be used.

The Spramotor machine at Trenton is

practically the same as that used by the Dominion Department of Agriculture at Ingersoll last year. The pump is double cylinder, with two speed gear and tank filler, operated by a Coldwater, Michigan, gasoline engine of two and a half rated horse-power. Two lines of hose with 12 nozzles receive ample power from the slow-speed gear. The tank with this machine has a capacity of 200 imperial gallons, which I find rather too much for the hilly orchards around Trenton.

THE DEMONSTRATIONS.

Owing to the lateness of the season when the machines were started the first spraying on the dormant trees was omitted. The first application began at Meaford May 5 and at Trenton May 11. After the initial attempts both machines ran smoothly, and at the date of writing have given no trouble. Many of the orchards in both locations are hilly and will furnish splendid tests of the practical value of these machines under trying conditions. The trees in many cases are only 20 feet apart each way and render the use of a tower almost impossible. The axe could be used to advantage in such cases and every other row should come out.

It is the aim of the Department in this work to interest the fruit growers sufficiently that they may, where already organized as a local fruit growers' association, take up the work thus begun, and having purchased power machines run them from year to year for the benefit of their members. The newly-organized cooperative associations will, it is hoped, make this one of the main features of their cooperation.

With good fruit to sell no association need fear as to the prices. The increase of the apple scab in Ontario seems to have impressed the growers with the absolute necessity of spraying, and this task, for none doubts that it is such, may be done far more thoroughly, profitably and pleasantly by the use of these powerful large-capacity machines than with the still useful hand pump.

NEW FORMS OF KEROSENE EMULSION

FRANK T. SHUTT, CHEMIST, AND W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

IN regard to the practical use of the new forms of kerosene emulsion, described in the May issue of The Horticulturist, we beg to state that although a considerable amount of spraying has been done, both with the lime and flour emulsions during the past month, the season is not yet sufficiently advanced to allow us to make deductions as to the strengths best and safest to use. We may, however, make the following remarks:

Lime Emulsions: All these emulsions keep excellently, only traces of free oil showing after five weeks standing. There is, as before noticed, a separation into limey layers, but these on merely shaking or stirring readily become incorporated, making a smooth and uniform emulsion. Of the many lime emulsions under trial we conclude that the most satisfactory is the one made with freshly slaked lime.

Flour Emulsions: These, with the exception of the emulsion made with scalded flour show a separation of oil on standing. Churning for five minutes, as with the Bordeaux mixture is, however, sufficient to again thoroughly incorporate the oil and make a satisfactory emulsion. The scalded flour emulsion (though, as in the case of the lime forms, showing a layer of thin oily paste) gave but slight indication of free oil. This layer very readily becomes re-incorporated and an excellent emulsion obtained.

When properly prepared no difference could be observed in the application of these emulsions, but the whitening effect on the sprayed trees, etc., of the lime forms and the absence of this feature from the use of flour emulsions was particularly noticeable.

GROWING AND HANDLING APPLES FOR PROFIT*

W. H. DEMPSEY, TRENTON, ONT.

APPLES are grown in nearly every kind of soil and location provided by nature in the Bay of Quinte district, and to a certain extent are giving fair returns for the investment. The successful orchards are those that are in more favored locations, somewhat rolling land, protected from the west and southwest winds, which cause great destruction to fruit before it is ready to pull and cause the young trees to lean to the northeast, leaving the trunks subject to sun scald and of an unsightly appearance.

The ideal soil for an apple orchard is sandy loam, with clay subsoil, well drained naturally or with under drains. This class of land has many advantages compared with heavier land. It is much easier to keep in thorough cultivation, retains moisture better in a dry season, gives quicker returns from fertilizers, although it does not retain them probably as long. Cover crops take much easier, fallen fruit is not so much damaged, and is in a much better condition for the canning factory or evaporation and is very often shipped to market. There are not many varieties which do not do exceedingly well on this class of soil. Cranberry and Blenheim Pippins do better on heavy soil, while Hubbardson Nonsuch does best on limestone gravel.

SELECTION OF TREES.

A tree of medium size, two or three years old, from a graft or bud is best, as trees that are older are slower in starting and do not make as good growth. I prefer a good one year old to a four or five year old. In four years the one year old tree will be the larger and come into bearing first.

Up to 15 years ago the orchards were all planted 20 to 30 feet apart and of late years 40 feet apart, which might seem to be a lot of vacant space. For 15 years at least I would prefer 25 or 35 feet apart, and when the trees begin to crowd, remove every alternate tree, and if the orchard has been properly cared for they will by that time have paid a profit for the care and land occupied by them. The remaining trees will show a marked benefit both in appearance and in the quantity, size, color and quality of the fruit.

FORMING THE HEAD AND PRUNING.

When the trees are set they should not be so that the head will be formed 30 or 36 inches from the ground. If trees are dried out and not in a healthy condition, I would leave three or four terminal buds, as they are much easier to start into growth than the other buds.

If all the branches are cut away close to the trunk adventitious buds would have to be depended on for forming the head, and as these might stand out anywhere along the trunk the top would not be as symmetrical as when four stubs were left. During the first season the tree will require little if any pruning, although if a tree is forming a poorly shaped head a little judicious pruning will often be helpful in making a uniform school. In early spring the trees should be looked over and whatever branches are not required in forming a good head should be removed, care being taken not to remove too much. The less pruning done the sooner the trees will come into bearing, and if the trees are quite thick when they come into bearing fruit the weight of the fruit will make them nearly thin enough.

Many growers seem to think they are not pruning unless they remove everything from the centre of the tree so that there will be no fruit except at the outer ends of the branches. Sometimes it is 10 feet from the trunk to the first fruit spurs, causing the tree to split in pieces although there are only a few bushels of fruit on it. I prefer

*Extract from an address delivered at the recent convention of the Pomological and Fruit Growing Society of the Province of Quebec.

to have fruit spurs start at the trunk of the tree, taking whatever is removed from the outside of the tree so that the sunlight can get in to the fruit. Never do more pruning than is necessary. Rather have an orchard not pruned at all than prune it too severely. With little or no pruning the tree will usually load heavily, and with the application of fertilizers the fruit will come to a fair size or a size that will carry to a foreign market in good order. Heavy pruning, on the other hand, forces the tree into too much wood growth and very little fruit of a large size that will not carry to market in as good condition as medium-sized fruit.

PICKING THE FRUIT.

Apples are much easier gathered from trees that are loaded all through. There is less danger of breaking such a tree in pieces. The ladder may be placed against the outside branches, then put through the centre and the whole tree thus cleaned without climbing through it, while the trees with the fruit out far are frequently split with the weight of the picker, which should in all cases be avoided.

If the soil at the time of planting the trees contains a liberal amount of humus and plant food it will not be necessary to apply manure until the trees begin to bear. If the young trees make too rapid growth they will be more subject to blight and fungus growth each season. If they are on land deficient in plant nutriment a light coat of manure should be applied, and when the trees have come into full bearing stable manure may be applied at the rate of 10 to 20 tons to the acre with good results. When the soil is deficient in humus and nitrogen, and the danger to the trees will be lessened, it will be found beneficial if it is supplemented with 50 or 100 bushels of unbleached wood ashes and 300 to 500 pounds of ground bone to the acre. If ashes cannot be obtained 200 to 300 pounds of muriate of potash may be substituted. The stable manure may be spread on any time during the winter and the fertilizers may be used early in the spring.

PROMOTING WOOD GROWTH

LINUS WOOLVERTON, GRIMSBY, ONT.

SINCE June is the month for wood growth it is the time for constant cultivation of fruit plantations. Unless vigor of growth in tree or plant is kept up in the early summer there will not be sufficient nutriment stored up for fruit and fruit buds in the latter part of the season. In the apple orchard, for example, unless about one foot of new wood growth is made by the middle of July fine apples need not be expected.

My plan is to plow my orchard in the fall and keep it worked in the spring until July 1 with disc and harrows; after that to cease cultivation until after harvest. If growth is too vigorous I seed down for a few years. In rich, sandy loam, with plenty of moisture, I find the apple tree goes too much to wood, and Baldwins go for years without producing a crop. Such trees should be put down to grass for a term of years. The cherry orchards should be cultivated in order to keep up a healthy wood growth, but not deeply. In most soils a good disc and a good set of iron harrows will do the work of thorough cultivation to a depth of about three inches.

The vineyard needs an occasional plowing with a one-horse plow, finishing with the horse grape hoe and the hand hoe, but if plowed away the earth should be plowed back again as soon as the hoeing is completed. Respberries and blackberries need similar treatment. The canes are often much injured by deep plowing away, which should be carefully avoided.

SPRAYING EXPERIMENTS IN THE NIAGARA REGION

PROF. W. LOCHHEAD, O. A. C., GUELPH.

THE most serious enemies of the fruit grower in the Niagara region are the San Jose scale, the cherry aphis, the codling moth, grape rots, the plum rot and the apple scab.

For several years strenuous efforts have been made to control the San Jose scale with such materials as whale oil soap, crude petroleum, and the lime-sulphur wash. Success has followed the application of the lime-sulphur wash in particular, but on account of the trouble involved in boiling the wash it was thought advisable to try a method of preparation which does not require prolonged boiling by steam or fire. Besides, it was deemed advisable to know the effectiveness of certain new scale remedies which have recently appeared, viz.: Carlson's mixture, Pratt's Anti-scale Remedy or Scalicide, and the kerosene-limoid mixture.

The grape rots have also caused much loss during the last three or four years. The black rot is specially destructive in the St. Catharines district, and promises to give much trouble in its control. The downy and powdery mildews are the destructive rots farther west in the Grimsby-Winona district, and the grape growers in that district are decidedly anxious as to the future. The cherry aphis and plum rot are also difficult to control and cause much loss in many orchards.

The Minister of Agriculture, realizing the serious nature of the attacks of these vineyard and orchard enemies in the great fruit-growing regions of Ontario, decided to arrange for a series of experiments and demonstrations this season in spraying at eight places from Winona to the Niagara river. The main object of these experiments and demonstrations is to test the effectiveness of the preparations which have been recommended for the control of the chief insect and fungous pests of the orchard and vineyard.

THE WASHES USED.

The following substances will be used in the plum and vineyard experiments: Cop-

Sacred Heart Church and Presbytery, Alberton, Prince Edward Island

The beautiful home of Rev. Father Burke, President of the Fruit Growers' Association of Prince Edward Island and the foremost among Maritime agricultural leaders.

per sulphate and the lime-sulphur wash on dormant vines, and Bordeaux and soda Bordeaux at intervals during the growing season.

The following substances were used against the San Jose scale: The lime-sulphur wash (unboiled), the kerosene-limoid mixture, the Carlson mixture, and Pratt's Anti-scale Remedy.

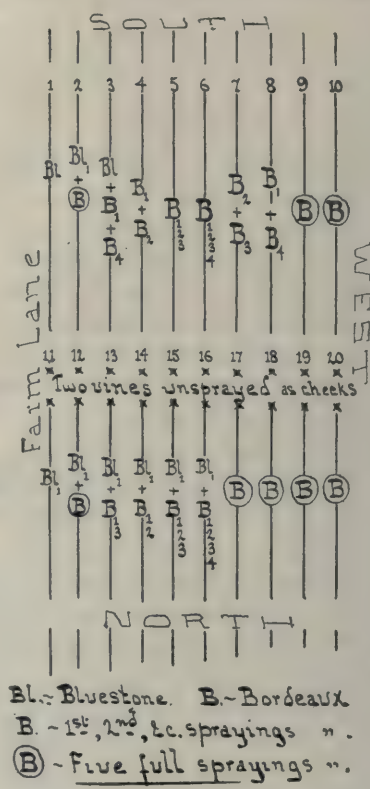
The first round of experiments and demonstrations, as announced in the May issue of The Horticulturist, was held as follows: April 13, at Mr. Murray Pettit's, Winona; April 14, at Mr. Ambrose Pettit's, Grimsby; April 15, at Mr. R. Kelly's and at Mr. Bartlett's, Beamsville; April 17, at Mr. J. Fretz's, Jordan; April 18, at Mr. George Robertson's and Mr. Pay's, St. Catharines; April 19, at Mr. Jas. Hutchison's, Virgil; April 20, at Queenston; April 21, at Niagara Falls.

On account of the large extent of territory to be covered the owners of the vineyards and orchards in which the experiments were conducted were asked to provide facilities for the preparation of the chemicals used, such as hot water or steam, a kettle, two or three barrels, and a small amount of lime, sulphur, and copper sulphate. The owners were also asked to have the grape vines cleaned of old bark.

The spraying operations for the remainder of the summer will be directed mainly against the grape rots. It is hoped that the results will indicate (1) the proper time to apply the Bordeaux, (2) the number of applications which will be necessary for the production of clean grapes, (3) the most effective sprayings of the season's operations, and (4) those sprayings which may be omitted with safely.

The bluestone application (four pounds to 40 gallons of water), according to the Ohio authorities of doubtful value, is made in the spring while the vines are dormant, the first Bordeaux (B1) spraying about the

DIAGRAM OF MR. MURRAY PETTIT'S EXPERIMENTAL VINEYARD AT WINONA.



first week in June when the new growths are from 12 to 18 inches long, the second Bordeaux (B2) after blossoming about the first week in July, and subsequent applications at intervals of 10 days or two weeks.

The accompanying chart of the experimental vineyard at Mr. Murray Pettit's will show clearly the varied nature of the applications and the information which we may hope to get from the experiments. Mr. P. W. Hodgetts, B. S. A. of the Department of Agriculture, has consented to act along with me in carrying out these experiments, and he will probably conduct the July and August experiments.

Barnyard manure, made chiefly from grain and hay, is not well balanced in fertilizing ingredients for strawberries.

THE CODLING MOTH

BULLETIN No. 10 of the Ohio Agricultural Experiment Station, which has recently reached The Horticulturist, gives some valuable information respecting the codling moth. The following summary contains the substance of what appears in the bulletin:

1. Active, mature larvae of the codling moth may be found in Ohio orchards from June 30 to October 13, which signifies that the fruit is more or less subject to attack during the greater part of the growing season.

2. An average of results from unsprayed plots in three widely separated orchards shows that had no spraying been done during the past season 43 per cent. of the picked apple crop would have shown injury from codling moth at harvest. In addition, a considerable quantity of fruit fell during the summer, a large percentage of which was wormy. The results from sprayed plots averaged only nine per cent. wormy fruit. In other words, 91 per cent. of the fruit from sprayed plots was free from injury, whereas, of that from unsprayed plots, only 57 per cent. could be so classed.

3. The figures from each of three orchards indicate that a large number of sprayings are unnecessary to control this insect. In some cases the very early spraying and in others the very late apparently did not accomplish much. As early spraying with Bordeaux is necessary to control the scab, and as the poison may be applied in it at a very small additional expense, it is best to continue the established practice of spraying as soon as the petals have fallen, using both the Bordeaux and poison. After two or three sprayings of the combined mixture the Bordeaux should be discontinued. After this at least one and possibly two applications of the arsenate of lead should be made at intervals of two weeks.

4. Arsenate of lead is superior in killing power to arsenite of soda, which is probably due to its sticking qualities.

5. Being applied in Bordeaux mixture does not reduce the effectiveness of arsenate of lead.

6. Damage from apple scab can be largely avoided by two or three applications of Bordeaux mixture.

7. Regardless of the care taken in its preparation, Bordeaux mixture sometimes injures foliage, especially when the application is followed by wet weather.

8. The keeping quality of apples attacked by codling moth and apple scab is very seriously impaired.

Bandaging Trees

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

At what season should apple trees be bandaged? What material is used and where can it be obtained?—(W. T. N., Zenda, Ont.

I shall take up your questions in the order given. First, June is the time to put burlap bands on the apple trees for the codling moth. This should be done before the middle of the month.

Coarse sacking or ordinary burlap is the material best suited for this purpose. It can be obtained at dry goods stores, where it often comes as the outside covering on goods sent from wholesale houses.

Set More Trees.—Farmers should plant more fruit trees, say up to five acres on a 100-acre farm. New markets are being opened up in Europe, which, with our own northwest, will create a demand for first-class fruit, which will increase much faster than the supply.—(Frank J. Barber, Georgetown, Ont.

The only spraying I have found necessary so far has been for oyster shell bark louse, which I have treated successfully, with a thorough spraying of fresh slacked lime, in March.—(G. H. Hutton, Easton's Corners, Ont.

RESULTS FROM POWER SPRAYING

"THE power sprayer I purchased last April," said Mr. R. H. Lewis, of Hamilton, to a representative of The Horticulturist, "has given me excellent satisfaction. With it I spray over 6000 trees and 4000 grape vines. Previous to last spring I had done the spraying for four years with a hand sprayer. These hand sprayers should be called 'man killers,' they are so hard on the people who operate them. Three men were required to use the hand sprayer. To spray three acres of solid fruit required seven days, during which we usually had plenty of breakdowns. Using the power sprayer last year only two and a half to three days were required and the work was much better done.

"With the hand sprayer I found it impossible to apply the spray thoroughly, as the force was not sufficient to send the spray to all portions of the trees, especially the large ones. This meant that in the case of plums the center of the trees were frequently not reached by the spray and the fruit was usually badly damaged. With the power sprayer the spray penetrated to every part of the tree and consequently the results were better than those obtained with the old hand pump.

"My sprayer obtains its power from the hind axle. I drive between the rows of trees with a man on each side of the sprayer, each man spraying the trees on his side. Six and sometimes eight nozzles are used. In this way the work is done rapidly and thoroughly. It is possible for one man to drive the team and spray the trees on one side, but it is hard work unless the trees are very small.

A SAVING IS MADE.

"In addition to the saving of time that is made when the power sprayer is used there is a big saving in material. Formerly I used to apply 250 pounds of vitriol, while this year I only used 100 pounds, but I used 50 pounds of caustic soda in addition. I am a strong believer in the caustic soda and sulphur wash used before the buds appear and while the wood is dormant. It is, however, a mixture that has to be used very carefully. The caustic soda cleans the trees of every kind of fungus and rids them of all insects, giving the trees a very nice gloss. Cherry trees, after the mixture is applied, look as if they had been polished. This mixture can be applied too strongly, however, in which case the trees will be injured, but the use of reasonable proportions gives good results. I use 15 to 17 pounds of caustic soda to 100 gallons of water. I have had no experience in San Jose scale, but believe that this mixture would be an effectual remedy for the scale.

"I generally spray twice, before and after the buds appear, and plums, pears and grapes four times. For the plums and pears I use the Bordeaux mixture except for the first application, when caustic soda is used. Peaches are first sprayed with the caustic soda and sulphur solution in the proportion of 30 to 35 pounds of sulphur mixed with 15 to 17 gallons of water. The second application is made with the Bordeaux mixture. Last year I applied the caustic soda mixture to part of my trees. The trees on which it was used produced peaches, but those on which I had put the Bordeaux mixture both times did not yield. This year I intend to use the caustic soda application on all my trees.

"I have about 135 cherry trees of the Early Richmond and Large Montmorency varieties. I sprayed three times with Bordeaux mixture, there being five to seven days between each application. It requires about one hour each time to spray these trees. The total cost, including the time, labor and value of the mixture amounted to about $3. As a result of the spraying I secured over 700 baskets of cherries. I sold the crop for 85 cents to $1 per basket, and it netted me nearly $700. One of my

neighbors had about 300 cherry trees of the same varieties and picked 15 baskets of poor fruit, and other fruit growers in the district east of Hamilton, who did not spray, obtained about the same results. I am satisfied that my success in securing a crop was due to the thorough spraying. In view of the returns I have secured I have concluded that it pays handsomely to spray.

"Before I purchased my sprayer I was told that it would be difficult to maintain the pressure when it was derived from the rear wheel, but I experienced no trouble of this kind. It was possible to work the pressure up to 175 pounds in five minutes. The sprayer could remain opposite one tree for several minutes without the pressure decreasing to any great extent."

Enemies in the Orchard

J. O. DUKE, RUTHVEN, ONT.

I FIND oystershell bark louse one of the most difficult pests to handle. Spraying with whale oil soap may check but does not eradicate it. I have used lime, salt and sulphur for the past two years and hope to have better results from this.

The peach tree borer is easily kept out of an orchard by carefully digging the borers out with a knife. This should be done twice a year until the tree is five years old, after which, if the trees have been kept clean and have no scars at the base, the borers will have difficulty in securing a lodgment.

In the spring, during the months of April and May, I have the earth removed from the base of the tree. In doing this all large borers can be easily found and dug out. In a couple of weeks I send a man over the orchard again. This time most of the small grubs can be found, their presence being indicated by their excreta appearing as fine brown sawdust at the entrance to their hole. This man also paints the tree from the ground to the height of a foot or so with a mixture containing equal parts of whale oil soap, crude petroleum and water. In a week or 10 days the trees are again gone over and banked up six or eight inches above the level of the ground, each tree being carefully inspected, before the earth is put around it, for signs of grubs that may have been overlooked. This final banking up should be done before June 10, as that is about the time the borer moth begins to hatch in Essex county.

In October I like to go over my trees to bank up for the winter, always keeping on the watch for a stray borer. I believe that trees painted with the mixture mentioned are practically insured against mice, as none of my trees that were painted in the summer of 1903 were girdled, while a few rows that were missed were nearly all taken.

Spraying Trees When in Bloom

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

A number of farmers in this locality are advocating the spraying of apple trees when in full bloom. One prominent fruit grower cites an instance where a man had started, but stopped part way up a row, being warned that the blossoms would not mature. That fall the fruit on the sprayed trees was far superior and the place he left off could be distinctly seen. Kindly give me your opinion as to spraying when in bloom.—(C. F. Bailey, Colebrook, N. S.

I cannot recommend spraying while the trees are in bloom, for this would mean the destruction not only of the honey bees but the wild bees which help to bring about fertilization of the blossoms. The good results obtained from spraying would no doubt have been just as marked if the trees had been properly sprayed before and after blossoming.

From your statement it appears that trees sprayed while in bloom show marked results over those unsprayed. This is nothing more than might be expected, still it does not show how many bees were destroyed

through spraying at such a time. If the practice of spraying when trees are in bloom became at all general it would in time lead to lighter crops through the destruction of the bees and lack of fertilization of the blossoms.

Cooperation in British Columbia

THE British Columbia Fruit Growers' Association has a programme at each of its quarterly meetings, including addresses and papers by persons competent to deal with the questions allotted to them. In addition to the regular quarterly meetings supplementary meetings are held in newly settled districts, the object being to point out the proper modes of planting, pruning, spraying and cultivation of orchards, advising varieties of plant, giving instruction in grading and packing fruit, and assisting to have the orchards established on a proper basis.

In the older districts the meetings are to encourage the spirit of cooperation, which does not stop at marketing, but includes cooperation in planting. The growers in a section join in planting the same varieties, thus establishing a name for say Spitzenburgs from Salmon Arm. Cooperation in purchasing supplies, such as boxes, spraying material, fertilizers, etc., is also encouraged, as well as in marketing the fruit. The first efforts were directed to securing uniform quotations and the success encouraged the association to widen its field. The result is four cooperative shipping unions have been formed, with others ready to fall into line.

The association has three vice-presidents, one in each of the natural divisions of the province—Vancouver Island, Lower Fraser Valley, and the interior. The vice-president on the island presides at all meetings on the island; the second vice-president on the lower Fraser; the president in the Okanagan valley, and the third vice-president in the Kootenay valley. The secretary is the only paid member of the executive who attends all meetings, thus saving travelling expenses.

Since the annual meeting in January three meetings have been held, one of the former class at Matsqui, and two of the latter at Chilliwack and one at Mission City. Meetings to encourage cooperation were arranged for Port Hammond, Burnaby and Langley in March, and at Salmon Arm, Enderby, Armstrong, Kelowna, Peachland and Summerland for early in May. These meetings were a combination of the two classes. Meetings will also be held in July in the Kootenay valley.

Let the Robins Live.—Robins have not become so troublesome that I would like to see them destroyed. They take a large number of our cherries, and are increasing rapidly in numbers, so that it may soon become necessary to destroy them. They should not be protected by law when they become so numerous as to destroy our crops. I would not wish to drive them away as long as they leave me a reasonable portion of the fruit.—(W. W. Hillborn, Leamington, Ont.

The British Columbia Fruit Growers' Association has adopted a resolution in favor of establishing an experimental orchard on Vancouver Island. They also decided to ask the provincial government to enforce section seven of the rules of the Board of Horticulture which gives inspectors power to destroy or ship to the grower any fruit not considered merchantable by reason of scab or other defects.

Our provincial fruit growers' association was only instituted last year, but a good deal of interest has already been shown and the membership is steadily increasing.—(Henry Wilmot, Oromocto, N. B.

THE SHIPMENT OF APPLES

"WHY should fruit growers have to ship even their peaches by express," asked Mr. E. D. Smith at a fruit growers' meeting held at Beamsville. Fruit sent by freight should reach points within 100 miles the next day. There is needless delay at Toronto for fruit shipped from the Niagara district. The Railway Commission has promised consideration, but he questioned if much will be done, unless by cooperation fruit growers bring pressure to bear on the commission. They spend thousands of dollars for fruit carriage and the railway companies will not even furnish proper cars. The cars on which the apples are shipped get too hot. Prof. Robertson tested the cars and found a temperature of 85 degrees. It was said the apples spoil on shipboard, but more damage is done on the cars.

Apples remain in barrels in the orchard for some time without spoiling, but they soon spoil on board ship because there is not proper ventilation. Apples sent by ventilated ships are probably worth one dollar more per barrel. There should be an act of parliament to compel ventilation, as is done in the case of cattle ships. Thermographs should be provided. Proper ventilation would save $1,000,000 a year to the apple growers of Ontario.

Fruit growers must raise a good article. If half the fruit was dumped out growers would get more money for the other half. The trees must have rich ground and the fruit should be thinned out. Peach trees could be thinned for two cents a tree. Mr. Smith said he had thinned some trees from 12 baskets to five and it paid, as he secured larger and better fruit.

In regard to the size of apple barrels there are two sides to the question of uniformity. Ontario has a reputation for large barrels, and there are no extra charges for freight, handling, etc., in which way more than enough is realized to pay for the extra 16 quarts of apples. Baskets are required by law to be uniform in size, but the act is not carried out. Cooperation is needed among the fruit growers to remedy these defects.

After hearing Mr. E. D. Smith speak of the necessity for cooperation in shipping fruit, Mr. A. N. Brown, of the State of Delaware, expressed surprise that the Niagara shippers have no ventilated cars or fruit trains. The growers in the States, he said, have been through like experiences and had to deal with the Pennsylvania railway monopoly. He advised Ontario growers not to go to the Railway Commission but to appeal direct to the railway companies. They in Delaware had, after a fight over the question of routing which threatened to kill their industry, secured a market train which carried their fruit at the rate of 35 miles an hour. The Niagara shippers should have such a train to Toronto. The rate on such a train was high, but not nearly so high as by express.

New Seedling Pear.—A splendid variety of pear is being grown by Mr. E. C. Beman, of Newcastle, samples of which were shown at the last Provincial Fruit, Flower and Honey Show in Toronto. It ripens during the last of October or early in November. These trees have been growing in Mr. Beman's orchard for 12 or 13 years, and he has some that are top grafted. It bids fair to be a very productive variety, and the fruit is of large size. The quality is not quite as good as the Sheldon, but is similar. The fruit is juicy and delicious, and it promises to become popular.

PICKING STRAWBERRIES

THE strawberry picking season will soon be here. The illustration on this page shows a portion of an 11 acre patch of strawberries on the fruit farm of Mr. J. O. Duke, of Olinda, Ont., with the pickers at work. "I employed 25 to 40 pickers each day," writes Mr. Duke to The Horticulturist. "They were placed under a foreman, who saw that the berries were picked right and that the rows were picked clean, each picker having a row to herself, which was thoroughly done before another was given. The rows were numbered, and as each row was taken the number was placed in a book opposite the name of the picker.

"I find this method a great advantage to keep the pickers on their own rows. There are always some pickers who, if not watched, will run all over the patch. Each picker is provided with a carrier holding six quart boxes, and is instructed to pick into all the six at once and not to fill one box at a time, to be careful not to have any holes in their baskets, and that the berries must be put in carefully and compactly.

"The fruit is packed in crates holding 24 quart boxes for shipping. I pay two cents a box. I grow the earliest ripening varieties and find Mitchell's Early, Bedar Wood and Crescent about the best. They don't grow heavy crops of fruit, but catch the early market. For a late berry Williams is hard to beat, being very firm and very productive, though late. Being one of the first growers in Canada each season to pick berries I always find a market at satisfactory prices to the east and north."

Pine Twigs For Currant Worms

THE use of pine twigs to keep off the worm from currant and gooseberry bushes is recommended by Mr. T. R. Pattillo, of Bridgewater, N. S.

"Some years ago," he writes, "I read an article bearing on the subject from the pen of a lady amateur gardener who had successfully used them and was anxious others should know of it. I put it into practice, with the result that I have had no trouble with the pests for the past seven years. There is no skill required, but the twigs must be used in time.

"When the bushes begin to bloom I hie to the woods for my supply, getting them from one foot to three feet long, and placing them in and out through the bushes, let-

Strawberry Pickers at Work for Mr. J. O. Duke, of Olinda.

ting them rest on the branches so that the wind will not blow them down. I put several on each large bush and let them remain till the season is over. A lady friend tried my method last spring on her currants, overlooking the necessity of putting them on the gooseberries. As a result she found the latter stripped of every leaf while the currants were intact."

Dandelions in Lawns

PROF. H. L. HUTT, O. A. C., GUELPH.

Can you give me any remedy for dandelions in lawns? Toronto lawns are absolutely yellow with them. Like the poor, they are always with us in season.—(T. McGillicuddy, Toronto, Ont.

The best remedy for dandelions in the lawn is to grow grass in their stead and to grow it so abundantly that the dandelions will find no quarter. It is useless to attempt to spud them out, for this only affords a suitable place for the lodgment of seed which is blown about freely, and really tends to aggravate the trouble rather than remedy it. It is practically impossible to rid the ground of dandelions where there are so many going to seed all around and thousands of seeds being carried hither and thither by the wind.

Our practice has been to apply a top dressing of well rotted manure in the fall to the poor spots in the lawn where the dandelions are most plentiful, and in the spring, if the grass is not thick enough, to rake in some fresh grass seed. We have found this to give wonderful results, the dandelions being almost crowded out by the luxuriant growth of grass, and it has often been possible to trace the boundaries anywhere on the lawn where such applications have been made, not only by the apparent absence of dandelions, but by the luxuriant growth of the lawn grass.

But why try to get rid of the dandelions? What can be more beautiful than a lawn brilliant with their beautiful bloom? It is simply because we have them in such abundance that we despise them. If they were as scarce as the English daisies we would import them by the thousands. Is it not another case of familiarity breeding contempt?

Window Box Plants

WM. HUNT, O. A. C., GUELPH.

Many of the plants that have to be taken from indoors during the summer can be made use of in window boxes, hanging baskets, veranda boxes, or vases on the lawn. The Tradescantias (Wandering Jew), Umbrella plant, Cordylines, Ferns, German or Cape Ivy, and many varieties of Begonias or Fuchsias—if in flower—make splendid plants for window boxes on the east or north side of the house, whilst Coleus. Vincas or Perriwinkles, especially the variegated type, will help to fill boxes or baskets for more sunny positions. By paying a little attention to the different positions suited to plants during the hot months of summer, many of them can be grown and will improve their condition very much by the time they are wanted for the window again in winter. Plentiful and copious sprinklings with water on the foliage of Palms, Rubber plants, Cordylines and similar plants is necessary during summer. Azaleas also should be sprinkled every morning or evening when the weather is hot and dry.

We gave up planting trees on Arbor Day about 10 years ago because we had as many as our school grounds would accommodate. We plant 15,000 flowers and vines every year in our school grounds on Arbor Day. —(James L. Hughes, Public School Inspector, Toronto.

I would advise every fruit grower to spray his orchard.—(Fred. Heeney, Ingersoll.

AUTOMATIC VENTILATION IN PRIVATE CONSERVATORIES

ROBT. W. KING, C. E., TORONTO, ONT.

THE practicability of automatic ventilation in private conservatories was raised a few years ago. It was thought that it would be decidedly advantageous, but it was doubtful whether the average gardener would have sufficient mechanical intelligence to care for the machines. The experiment has been tried with success during the last two or three years.

The pioneer experiment is particularly interesting from the fact that there is, first what may be termed an ordinary greenhouse on a miniature scale in which the heat is controlled by hand valves in the usual way, with the ventilation automatic; secondly, there is a show conservatory, apart from the greenhouses, connected with and opening into the residence in which plants grown in the greenhouse are displayed when in bloom. In this apartment the ventilation is controlled by nand, while the heating pipes are controlled automatically.

In fitting out this establishment cost was a secondary consideration, the main object being to obtain what was best for the purpose even though subject to some experimental expense. Before proceeding to further describe this greenhouse it may be interesting to refer to the way its present arrangements were brought about.

As in all such cases an architect was first employed. When it comes to the designing of a common greenhouse in which bloom can be grown satisfactorily, the ordinary architect usually exhibits himself completely at sea. In the instance referred to the building itself was not so bad, though the wooden wall plates surmounted by heavy, wooden mullions, carrying wooden gutters equally weighty, and a double row of purlin supports, five feet centers, might with advantage have been replaced by some of the more modern light iron or steel construction. When it came to the erecting of the internal arrangements the gardener, who probably had never been consulted unless in some high handed way, objected, and at his request the hand ventilation system that had been contracted for was replaced by automatics.

This greenhouse is 60 feet long by 19 feet wide, running north and south. This enables ventilation on both sides of the roof to be successfully used during winter months. When houses run east and west, and double ventilation is used, it is necessary in winter to disconnect shutters on the north side.

The house is divided into three compartments for the purpose of running different temperatures and degrees of ventilation. The first compartment is used for orchids, carnations, and bedding plants. This compartment is 24 feet long, separately controlled by automatic ventilation on both sides of the ridge. The ventilating shutters are hinged at the headers, the spacing being so arranged that the shutters on opposite sides of the ridge are not opposite one another. This compartment has also side ventilation on both sides and some base ventilation under the benches. The second compartment is used for forcing general conservatory stock, bulbs, etc. Its ventilation is similar to the first.

The third compartment, or rose house, is 15 feet in length, from which is deducted a liberal allowance for pathways and side benches, on which are grown cinerarias and numerous other plants. The rose beds consist of two central, modern, solid tile beds each nine feet in length by five feet in width. The roses grown are American Beauties, Brides and Bridesmaid. This compartment has automatic double ventilation at the roof, no other ventilation being used. It has its own special machine.

The gardener does his work in a very systematic way. He has his books of reference always at hand and is more than a sub-

scriber to florists' literature, because he reads it when he gets it, which is more than many florists do. His little batches of soil are graded to the different tastes of his various patients, his temperatures watched and studied, using self registering thermometers both for high and low. The blooms from individual plants are counted for comparison and guide in further purchasing, his daily cut is recorded, in fact one may see carried out in this miniature greenhouse a routine that might well recommend itself to many more pretentious commercial establishments.

In order to enable readers to judge as to what has been accomplished a list is appended of the cut from the rose house, equal success being accomplished in other branches:

CUT OF ROSES FROM 80 PLANTS,
1903 AND 1904.

	24 Brides.	24 Bridesmaids.	32 American Beauties.
October	111	143	13
November	120	44	24
December	25	46	6
January	42	33	15
February	20	21	34
March	67	20	56
April	79	48	137
May	33	49	105
	497	404	390

TOTAL CUT FROM 80 PLANTS IN 3 YEARS

	1901 and 1902.	1902 and 1903.	1903 and 1904
Brides	496	385	367
Bridesmaids	410	373	404
Beauties	514	404	390
	1410	1162	1161

This cut of roses is from the 80 plants for 8 months only of each season.

In regard to mechanical ability to operate automatic ventilation and heat control, if the agents for the latter have had no more trouble than those who supplied the former they must think themselves lucky, the former having had only one call in three years. Now, however, the machines require and are undergoing cleaning and repairs.

Automatic ventilation where it can be successfully operated seems to be particularly well adapted to a private conservatory. It is well known how imperative it is in the culture of flowers, especially the more delicate varieties, to ensure an even and regular temperature. Most important of all is the avoidance of sudden changes which may be ruinous to success. The average gentleman's gardener has a multiplicity of matters to attend to outside the greenhouse, requiring at times his absence from the premises for long periods.

It must also be remembered that the larger the houses or the larger the cubic contents in block the easier it is to maintain an even temperature, so in a miniature greenhouse such as described, with its much larger proportion of outside wall surface as compared with the space heated, changes of temperature follow much more rapidly the changes in outside conditions, rendering more vigilance necessary than in the larger structure, where also at all times there are persons in attendance.

In equipping a private conservatory the cost of attendance necessary to constantly watch the ventilation has to be considered, if anything approaching such results as referred to are expected. If even at a small expense for automatic appliances they can be kept in successful operation it is a wise expenditure to install them in the first instance.

As designer and patentee of the automatic ventilator referred to, and notwithstanding that in some instances disappointment has resulted, the writer, considering the many favorable reports that have been received, together with an increase in the number of his patrons who are able to successfully operate them, is encouraged in his attempt to work further improvements.

Grass mulched orchards should seldom be pastured. The grass should be cut and allowed to lie on the ground.

PROPAGATION AND CARE OF ROSES

WM. HUNT, ONT. AGRI. COLLEGE, GUELPH.

GARDEN roses can be propagated by four different methods: by budding, grafting, layering, as well as from cuttings. The two last named methods are the best for the amateur to practice, not only because they give better results, but from the fact that budded and grafted roses are more apt to suffer from disease and winter killing than are our own root roses, the junction of the bud or scion and stock on budded or grafted roses being always more or less a dangerous point.

I am strongly in favor of our own root roses versus budded or grafted plants. I have grown hardy roses raised from cuttings for upwards of 20 years with splendid results, whilst during that period I have had to replace budded stock several times. Own root roses are slower in giving results than are budded roses, but when once established they will last for years without renewal, if hardy, suitable varieties are selected for the locality they are to grow in. Another point in favor of own root roses is that if they sucker out, the suckers instead of being useless—as well as hurtful—to the old plant can be used as young plants, as the suckers from an own root rose will produce a plant the same as the parent plant.

Many varieties of roses will increase themselves very rapidly from root suckers that can be detached from the parent plant early in the spring, and be planted out by themselves. But from budded or grafted plants, these suckers are only a nuisance and should be cut away as soon as they show themselves, being usually growth of the briar or manetti, both of them being useless from a decorative point of view, and are only used as stocks to bud or graft better varieties on.

The best time for an amateur to strike roses from cuttings is during July and August. A shallow open box three inches in depth of the required size, with holes bored in the bottom for drainage, and filled with fine sharp sand, is a good place to strike rose cuttings in. Sink the box level to the top in sand or soil in a partially shaded place out in the garden. Take the cuttings from wood of this year's growth, the wood should not be too soft or sappy, or

A Crimson Rambler Rose Bush and Its Owner.

The Crimson Rambler rose here shown was planted about seven years ago by Mr. D. McClew, president of the Deseronto Horticultural Society. It has had no protection from the wintry blasts. It was one year old when set out and showed some bloom the next year. The photograph was taken the fourth year, when it was a perfect mass of crimson during June, July and part of August, and at one time had over 7,000 roses. The following winter it was badly killed and Mr. McClew has come to the conclusion that in his section of the country protect on is necessary. His experience with the Crimson Rambler is that it wants generous feeding, very little trimming, and that it does better with a northern or eastern exposure.

too old and hard. The base of the wood below where the roses have been growing is perhaps the best, although other growth will answer. The base of the cutting should be made just below a leaf joint, and should be cut quite level or square across the cutting.

It is not absolutely necessary to make the base of the cutting immediately below a leaf joint, but I have had the quickest and best results by taking the cutting in this way. A cutting with two leaf joints will be long enough. Remove the lower leaf before inserting the cutting in the sand. Use a very sharp knife in making rose cuttings, so as not to bruise or damage them. Insert the cutting about 1½ to 2 inches in the sand according to the length, making a hole in the sand with a pencil or stick before inserting the cutting. Water the sand well once, and keep the sand moist but not soddened afterwards. Pot off into small 2½ inch pots as soon as rooted, using a compost of three parts of loamy potting soil mixed with one part of fine sharp sand.

Layering: Climbing roses are more easily propagated from layers than bush roses. By taking a young cane early in spring of the preceeding year's growth and burying a portion two or three inches below the soil at a distance of a foot or two from the parent plant, a good plant can be obtained by the following spring, when it can be severed from the parent plant. About 12 inches in length of the cane should be buried, leaving about a foot or 18 inches of the top of the cane exposed. This terminal end or top of the cane will form the future rose tree.

If a straight cut is made two-thirds through the cane and just below a leaf joint, at a point where the cane is buried deepest in the ground, it will facilitate the layer in rooting. The same method can be used in layering bush roses, but the proper wood from these is not always obtainable. Select the canes for layering from those growing from near the root of the parent plant, as they are easier to layer than canes growing higher up the plant. Climbing roses can also be struck from cuttings as recommended for bush roses.

CULTURE AND PRUNING.

Roses like a deep, well drained clay loam soil well enriched with rotten stable manure. The drainage is an important point in wintering over the more tender varieties of roses. Bone meal forked in in the spring is a good fertilizer for roses. Half a pound of bone meal to each bush will not be too much when the bushes have become established.

Prune hardy bush roses early in the spring just as the leaf buds show the first sign of swelling. Prune all the strong growth back to within four to eight inches of the old growth, removing all dead and weakly shoots.

Climbing roses should have the weak shoots of the new growth removed, especially if the bush is strong and vigorous. Shorten the strong canes back so that they are left about four to six feet in length according to the space they have to grow in.

Green fly and thrip are the worst insect enemies of the rose. Use tobacco dust made from raw tobacco stems or leaves, or a solution of strong tobacco water to keep down these pests. Apply these remedies as soon as the leaves are developed, as they are of more service as preventatives than as cures, and an ounce of prevention is better than a pound of cure.

For the rose slug use dry hellebore powder sprinkled on the foliage when moist, or use it early in the morning when the dew is on. Weak Paris green water will answer as well, but I prefer the dry hellebore. These instructions only barely touch on some of the most important points in the propagation and culture of the rose, much has to be learned by experience, more especially in regard to suitability or different varieties, and treatment of same as required by local conditions and surroundings.

HYBRIDIZATION *

J. H. FAULL, PH. D., LECTURER IN BOTANY, TORONTO UNIVERSITY.

A PLANT hybrid is the product of a cross between two plants that do not belong to the same variety. It may be a cross between two varieties, between a variety and the parent species, between two species, or between two genera. It may resemble either of the parents, or it may resemble the male parent in some respects and the female in others, or it may be intermediate between the two, or it may resemble neither.

Can the nature of the cross be foretold? On what are the characters of the hybrid dependent? What will be the characters of its progeny and can they be determined beforehand? These are pertinent questions for the plant breeder.

Unfortunately our knowledge of the laws of hybridization is meagre. Not long since I read a short article in one of the Ontario trade journals in which a prominent florist advised crossing everything that could be got to cross, on the basis that some valuable results were likely to be attained. This was an unwitting testimony to the fact that that florist knew of no guiding principles—to him the production of a valuable race of plants by hybridizing was a matter of merest chance. The day has not yet dawned when we may select two plants of different kinds and predict the characters of their offspring, but we can do this with a few, and it is of these that I wish to speak. Species is a group of like plants that possesses some one or more characters that are not common to its ancestral species. A variety is a group of like plants in which some character of the species from which it was derived remains dormant, or in which there is the reappearance of an ancestral character that was dormant in the parent species. These definitions are due to the Dutch botanist, DeVries.

Practically the first contribution to our knowledge of the laws of hybridization was made by an Austrian priest, Gregor Johann Mendel. He studied the crosses between a species and its variety and succeeded in discovering the law governing hybrids of this kind.

The law, stated in brief, affirms that when a species and its variety are crossed the pairs of differentiating characters become dissociated in the hybrid, and re-arrange themselves in the offspring into as many combinations as is possible in ratios that are determinable by the theory of probability. There are no intermediate forms or new qualities produced.

In order to understand the workings of the law let us select a specific example, say a cross between a blue-flowered species and its white-flowered variety, all other characters in the plants crossed being the same. The results are not affected by the direction in which the cross is made. The only restriction placed on the experiment is that there must be no subsequent crossing, the progeny must be kept isolated from other plants with which they might hybridize.

All of the flowers of the first generation after the crosses are blue. Blue then is a dominant character. Indeed, the species character is almost uniformly dominant. In the second generation there is a splitting up: 25 of the offspring out of every 100 bear white flowers and 75 blue. The white flowers are of the pure variety type, and breed as true as if there had never been a cross; 25 of the 75 are likewise of pure type, of the species kind, and they breed true. The remaining 50 are hybrids, their flowers being all blue because this quality is a dominant. In this generation then one-half of the plants have reverted—an equal number to each parent type, and but one-half are hybrids. The latter break up in exactly the same manner in the succeeding generation, namely in

* Extract from an add ess before the Natural History Section of the Canadian Institute.

the ratio of one white, two hybrids, one blue. This ratio is a constant for all cases that have so far been put to the test.

Mendel chose two pairs of differentiating characters for a second experiment. One made by DeVries may be cited by way of illustration. DeVries crossed a blue thorny form, Datura Tatula, with the white thornless Datura Stramonium Inermis. The members of the first generation were blue and thorny, so that these were evidently dominant characters. The second generation was broken up into the following classes: (1) 56.25 per cent, blue with thorns; (2) 18.75 per cent, blue without thorns; (3) 18.75 per cent, white with thorns; (4) 6.25 per cent, white without thorns. This is a proportion of 9:3:3:1. Out of the 56.25 per cent. constituting class 1, 6.25 per cent. bred true, and 55 per cent. were unstable hybrids. Of the 18.75 per cent. of class 2, 6.25 per cent. continued to breed blue and thornless plants, and the rest were unstable hybrids. In class 3, 6.25 per cent. bred true, and in class 4 all bred true. It will be seen that two groups reverted to the original types, two new types appeared. and the rest were hybrids, the offspring of which again split in a definite manner.

With a greater number of pairs of differentiating characters the difficulties of the experiment increase and the statistics become much more complicated, though the law applies to these complex cases just as it does to the simpler.

The explanation of this law is embodied in the hypothesis of germinal purity, that is that every germ is pure with regard to any particular character. Thus the hybrid between the blue flowered and the white flowered types of the first example is supposed to produce two kinds of pollen grains and two kinds of eggs, namely, those that are of the blue-flowered type and thise that are of the white. These may be illustrated thus: Pollen (B), Egg (B); Pollen (W), Egg (W).

It will be seen at once that Pollen (B) may fertilize Egg (B) or Egg (W), giving rise to the pure blue-flowered strain in the one instance and the hybrid in the other. Likewise Pollen (W) may fertilize Egg (W) or Egg (B), giving rise to the white-flowered variety or to the hybrid. Thus in a large number of fertilizations the proportions of the blue-flowered offspring to the hybrid and to the white-flowered variety will be 1:2:1.

In the hybrids formed from the blue-flowered thorny Datura and the white-flowered smooth variety (a cross involving two differentiating characters), there is a larger number of possible combinations. The distinctive characters of pollen grains and egg cells borne by them may be represented thus: Pollen (B and T), Egg (B and T); Pollen (B and S), Egg (B and S); Pollen (W and T), Egg (W and T); Pollen (W and S), Egg (W and S).

It will be seen that several classes may arise and that two new types will occur in the offspring, namely, a blue and smooth Datura, and a white and thorny Datura, and that the number in every class can be calculated by an application of the theory of probability, since the fertilization takes place with equal likelihood in all directions. The characters of the progeny can be foretold with equal certainty.

From a practical point of view the discovery of this law has not been directly of as great value to the plant breeder as was at first predicted. Obviously this is not surprising when it is considered that the law is of limited application, that a large proportion of the hybrids revert, that the numbers of any new type produced are comparatively small, that the difficulties of preventing subsequent crosses are very great, that the number of differentiating qualities between desirable crosses is usually large and so entails a most cumbersome experiment, that no new characters can be produced by

crosses of this kind, and that no undesirable qualities can be eliminated.

Nevertheless, it indicates what crosses to avoid. It also shows the danger of growing a species and its variety in close proximity if they hybridize easily. Thus if a blue and a white flowered variety are growing side by side impurities are sure to occur in the seeds of both. Of course the white variety can be purified readily, for on sowing the seeds the hybrids will reveal their presence in the crop by their blue flowers; but it is different with the species, for the blue flowers of the hybrids will pass undetected among the blue flowers of the species.

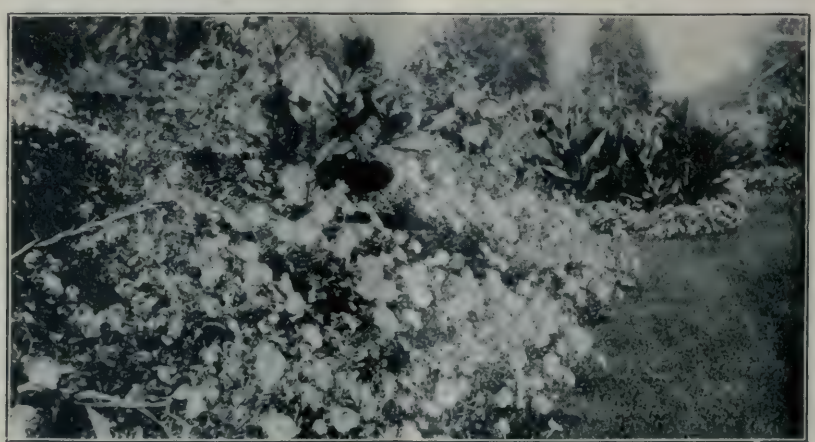
From a theoretical standpoint the discovery was of tremendous importance. It was a beginning of the unravelling of the difficult problems of hybridization. It showed how new types may arise in undisturbed nature. It opened up a line of experimental work on heredity and evolution. the first valuable experimental contribution to these subjects since the time of Darwin. It indicated methods of research which if prosecuted promised a flood of light on the process of evolution.

Research on hybridizing has become active in recent years. Every earnest experimenter can help towards their solution if he employs careful methods. But it must be pointed out that if the methods are to be of any value they must be statistical and kept with great care.

HOW TO MAKE CITY GROUNDS ATTRACTIVE*

MAYOR J. A. ELLIS, OTTAWA, ONT.

BESIDES trees and climbers, shrubs are a very important feature of landscape gardening. Unfortunately we in Ottawa are a trifle too far north for many shrubs which thrive and grow most luxuriantly a little farther south. Still, we have quite a sufficient list to choose from. The best shrubs for the Ottawa district are Hydrangea Paniculata Grandiflora, Philadelphus Coronarius (Mock Orange or Syringa), Viburnum Opulus Sterilis (Snowball), several spiraeas, of which Van Houttei is as



A Mass of Bloom Hiding a Fence in a City Garden

A portion of the garden of Mr. J. E. Northwood, one of the winners in the Lady Minto garden competition, held in Ottawa for several years, is here shown. The flowers to be seen are a collection of some of the easiest grown and freest flowering plants; such as petunias, gladiolus, coreopsis, some of the better class of perennial phlox, and others, all of easy culture and effective colorings.

*Continued from the May Issue.

good as any, Lonicera Tartarica (Bush Honeysuckle), lilacs, of which there are now many new and improved ones, especially in the doubles, and roses in bush form. There are, of course, many other shrubs which will do well in Ottawa, but the above list is complete enough for a small garden.

The next important feaure for a private garden is perennials. Of these we have a great list which do first-rate in the Ottawa district. During the last few years horticulturists have adopted much time to the improvement of perennials, and the result has been that we have a magnificent range to choose from. Blooms are larger and many new and beautiful colors and shades have been developed in some of the best known perennials. I would not advise everyone to try to grow all the really good and desirable perennials there are. The list is altogether too great. No one can go wrong, however, if he grows the following: Perennial phlox, paeonies, irisis, delphiniums, sweet Williams, aquilegia (of which the long spurred varieties are fine), Iceland poppies, Gypsophila Paniculata, Gaillardia Grandiflora, Helianthus Multiflorus (and some other varieties of perennial sunflowers), many varieties of lilies, of which Speciosum are the hardiest and best for this district, and the now somewhat common Rudbeckia—Golden Glow.

In the above list of shrubs, flowers and perennials I have given those which are the best, in my opinion, to grow in this locality. They are hardy and will live through our winters and flourish. I could have added many which are desirable, but which require a little less severe winter than ours. Having got the trees, shrubs, climbers and perennials, we can, if we have any space in our grounds left and something is still desired to complete our picture, fill in with annuals. I have tried to describe grounds tastefully planted and whose plants, etc., would be permanent and consequently require no replanting, but only a little care and attention each year. Without annuals at all we can make a most beautiful garden, as the shrubs and perennials above mentioned will give a variety of flowers during the whole season.

ANNUALS.

There are a great number of annuals, some good, some indifferent, and some almost worthless. I am only going to mention those which would fit in well in grounds surrounding a city residence, and already planted with trees, shrubs, climbers and perennials. Sweet peas, nasturtiums and gladioli are probably the best for such a purpose. The latter can be planted in clumps of five or six wherever thought desirable amongst the perennials and shrubs. The nasturtiums and sweet peas can be grown as a background against a trellis, or the latter, as Mr. R. B. Whyte, of Ottawa, grows them, around wire netting arranged in the form of a small circle. When the sweet peas are in flower the wire netting can hardly be seen, and they make a pillar of foliage and bloom. Other good annuals are poppies, asters, Phlox Drummondii, zinnias, salpiglossis, dianthus, pansies and scabiosa. Of bulbs, in addition to lillies, we can hardly do without narcissus and tulips, although the latter require to be renewed every third year or so, as they are apt to run out.

In arranging all or any of the above mentioned the trees and shrubs should go on the sides of the picture or along the boundaries of our grounds. The corners of the grounds should be curved off with shrubs or flowering plants. There should be no sharp straight lines in the planting of shrubs and perennials, but they should be so arranged that they will round off the angles and make easy graceful curves. In front of the shrubs should come the perennials and whatever annuals we use. In arranging these shrubs, perennials and annuals due regard must be had to their height and season of blooming. They must be arranged so that they will

grade, as mentioned above, gradually from the back and sides of the garden to the front, so that there will always be something in bloom in every part of the garden.

HAVE SOME COLOR.

Try and avoid too much greenness. Many gardens are spoiled by this, which would be vastly improved by a little dash of color here and there. I would not advocate planting flowers of the same species in different parts of the garden, as a rule, although there are cases (as in that of gladiolii) where this can be done to advantage. The general and best rule is to keep the flowering plants of the same species together so as to make a mass of them.

There are many lovely and beautiful gardens in Ottawa. The Lady Minto garden competition has done much to encourage people to improve their grounds, more than that it has given other people who were not in the competition object lessons from which to lay out their own grounds. It is a fact to be noted that when in a locality even one man starts to improve his grounds and beautify them, it is not long before his neighbors begin to follow his example, with the result that there is a general improvement in the locality. The gardens and grounds of Ottawa are of many and varied styles, each with its own peculiar beauty. This is as it should be, as each garden must be laid out in that way which best suits its surroundings and locality.

PANSIES IN THE GARDEN*

E. F. COLLINS, TORONTO, ONT.

PANSIES are easily raised from seed. The seed can be sown at any time, but the usual way is to sow it in July and August to have plants to flower the next spring, or in March or April, which will produce nice plants to flower during the summer and fall months.

If sown in the spring the seed should be sown in a pot or pan, in a light soil, or gentle hotbed, and kept moist. As the wellbeing of the plants depends on their being well rooted it is necessary to prick off the seedlings as soon as they are large enough to handle into other boxes filled with a rich light soil, about three or four inches in depth, placing the plants about three inches apart each way. This space will give them room to grow and also allow a nice sized ball of roots to be lifted, with the soil adhering, to plant out in the garden.

The soil should be of a free, rich and gritty nature, and deeply cultivated, as the pansy makes lots of roots of a fibrous nature and likes to penetrate a considerable distance in search of food. Grit is essential to the well being of the pansy. Road sand, gravel siftings with sandy loam, and lots of well decayed manure and leaf soil, are all favorable to the plants. When planting out to flower it should be done firmly and deep, as the plants are continually being renewed by means of the fresh growths which spring up from their base.

It is a good plan to top dress the roots once or twice during the season. This can easily be done by taking some light soil and shaking it close around the stems of the plants to a depth of about two inches, which treatment has a wonderfully sustaining and fertilizing effect on the pansy.

SOWING THE SEED.

If you wish to have plants for flowering in the early spring sow your seed about the early part of August. Do not think that by sowing earlier you will have more flowers the next spring, because, although you will get larger plants before winter sets in, you will find a lot of them liable to die if the

* Extract from an address delivered at the May meeting of the Toronto Horticultural Society.

winter should happen to be a severe one. It is the medium sized, well rooted, stocky plants that come through the winter the best.

Sow your seed rather thin, outside in the garden, in a small plot of well pulverized ground, and protect it from the sun and heavy rains. After the seedlings are large enough to handle make a frame by nailing four pieces of boards together and place it in the plot of ground you have prepared for them. Dig the ground deep and then rake it down to a fine surface and prick out all your seedling pansies into this frame. Each plant should be about four inches apart each way. Begin with the largest plants and work down to the small ones. By doing this you keep your plants the same distance apart and avoid having a strong, robust one overshadowing a tiny one here and there all over the bed.

Keep your plants shaded a few days after being pricked out and well sprinkled with water every day. After that they may be exposed to the sun and air. If the weather is dry they must be watered, but not too much, as this is the time when you want to build up a short, sturdy plant to resist the winter. Too much water makes the plants grow sappy and produces heavy foliage and such plants are sure to die first.

Chrysanthemums in June

GEORGE HOLLIS, BRACONDALE, ONT.

JUNE, like May, is a busy month for the chrysanthemum grower. The main crop, that is all the late varieties, should be planted this month. If you cannot spare the house for a week or two, and your plants are ready to plant, give them a size larger pot at once, for if they become hard and are stunted in any way your chances of getting first-class flowers are gone.

Keep the ventilators open night and day on your late stock and also on the early varieties you planted in May. Give the plants a light spraying every morning and be careful not to keep them over wet, which would cause a soft growth. Plant each variety separate in blocks across the bench. Single stems can be put five inches apart in a row and seven inches between the rows.

Your pot plants would be better were they plunged outside for two months. Keep the strongest growths pinched back during June and do not over water them nor put them in pots that are too large. A fair sized plant can be grown in a seven inch pot, and a large one in a nine inch pot. They will not need any manure water.

A good soil for the benches and pots is four barrows of earth (two bushels to a barrow) and one barrow of well rotted manure (cow manure preferred), with a four inch pot of bone meal to each barrow load. Four to five inches of earth in a bench is sufficient to grow high class blooms.

An Ugly Board Fence Made Beautiful

Readers of The Horticulturist who have bare board fences in their gardens can readily make them beautiful in the same manner Mr. Thomas Paradine, of Hamilton, did last season with his as shown in the illustration. The flowers along the right hand side of the walk are nasturtiums, asters, dahlias and pansies. There are other flowers in other parts of the garden which cannot be seen in the photo. The whole has to be seen before one can fully realize what can be accomplished with a trifling expense. The fence on the right hand is over six feet high and is covered from view by the nasturtiums and was very pretty at the time the photograph was taken last August.

GROWING TOMATOES NEAR HAMILTON

"I HAVE 48 acres under cultivation at my house and 25 acres in another place," said Mr. E. J. Mahony, president of the Hamilton District Tomato Growers' Association, to a representative of The Canadian Horticulturist who visited his place during May. "About 30 acres of this is in the vegetable garden. All kinds of vegetables are grown.

"Market gardeners about Hamilton have grown tomatoes extensively in past years for the canners. The latter have been paying 25 cents a bushel, but this year the members of the Tomato Growers' Association refused to make contracts at less than 30 cents. This the canners have refused to give, and by present appearances there will be few tomatoes grown. No contracts have been made, so far as I know, by any of the members of the association at last season's rates. The canners are dealing with new people and endeavoring to get them to grow tomatoes. Without contracts they cannot depend on a supply, and I do not believe they have succeeded in getting many to contract. We will be able to sell what tomatoes we raise in baskets and to obtain reasonable prices.

"The growers raise their own tomato plants. For the earliest the seed is sown about March 1, and for the general crop about March 20. They are started in frames. We grow our own seed. I have been offered as high as $8.50 per 1,000 for tomato plants in the canners' interest.

"The Late Ignotum has been the best variety I have grown. The last two years they appear to have run out. The Stone is the next best. It is a week later, but by saving the seed from the earliest fruit it can be made earlier. The Earliana is the best early variety. It is of good quality and smooth. Canners are glad to get it.

"Tomato seed was sown as usual this season by the members of the Tomato Growers' Association, but about a month ago a circular was sent out instructing them not to transplant, as there was no indication of the canners coming to terms. The latter are a strong body, and the combination will try every means to force the growers, but the latter have a fair prospect of gaining their point."

With reference to canned goods Mr. Mahony stated that negotiations are in progress for establishing a factory in Hamilton where vegetables and fruit will be put up in glass instead of tins, like the English goods. There is a demand among people who want the best, for English goods put up in glass, and they are willing to pay a little more for them. There is no reason, he believes, why these goods should not be put up in Canada. Tin cans are objectionable, especially for fruit.

Mr. E. J. Mahony,

President of the Hamilton Tomato Growers' Association.

"Though I am turning my attention to

fruit to some extent," said Mr. Mahony, "because the strip of country under the mountain where I live is well adapted for it. I am satisfied there is a bright prospect for vegetable growers and that they are going to make money out of their business."

SOME EXPERIMENTS WITH TOMATOES

DURING each season comparative trials have been made at the Vermont Agricultural Experiment Station to determine the relative productiveness of different varieties of tomatoes grown under identical conditions. The first season's work included 78 plants of Sutton's Best of All and 74 of New Stone. During 1903-04 48 plants of each of these two varieties were grown. In addition to these, 11 plants of Lorillard and eight of Sutton's Best of All were grown on the side bench for comparison. Taken as a whole the trial, the results of which have just been made known, indicates little difference in productiveness between Sutton's Best of All and New Stone, with the advantage slightly in favor of the latter. In the case of Lorillard and Sutton's Best of All the results of one season's trial are decidedly in favor of the former.

As to earliness the average number and weight of large and small ripe fruit produced by the Sutton and New Stone plants during the first year did not vary materially. A comparison by months shows that in March, during the latter portion of which some ripe fruit was picked, Sutton's Best of All gave the better yields of both large and small fruits. The increase in large fruits was small, about three per cent., while that in the total product was 7 per cent. During April the yield of large fruits from New Stone exceeded that of Sutton's Best of All by 15 per cent., and in total yield by nearly 13 per cent.

In one season's trial Lorillard proved superior in every respect to Sutton's Best of All. Lorillard is apparently the earliest and most prolific for forcing purposes of the three varieties tested.

A MARKET GARDENER'S EXPERIENCE

"I HAVE seven acres under market garden and orchard," said Mr. G. Nicholson, of Toronto, to a representative of The Canadian Horticulturist. "I raise all kinds of vegetables and dispose of most of my product to peddlers.

"Vegetables are grown in the orchard. Where the trees are close spinach does well. I had 4,000 cauliflower last year, which did well and headed up finely. I make them white by tying up. My tomatoes rotted badly. A considerable quantity of early potatoes are raised, for which I obtain as high as $1.70 a bushel. They are started in hotbeds and transplanted when the sprouts are about two inches high. Last year I lost a portion of the crop by the potato bug. A neighbor lost five acres. Paris green kills the tender plants.

"Club root did considerable damage to my cabbages. When the head has formed, and before it gets hard club root forms and the plant dies. I have not found a remedy. Salt or lime is said to be good, but I have not tried them.

"In the orchard apples, pears and cherries are grown. There are very few early apples, mine being principally winter varieties. Spys are not worth growing. They command a good price, but the trees are small producers. Greenings are the most satisfactory. I do not spray, as I find cultivation gives as satisfactory results. Some people complain of worms in their cherries, but they have never injured mine."

THE WHITE FLY AND THE REMEDY

THE white fly has proved one of the most serious insect pests encountered in the winter forcing of tomatoes, says Mr. Wm. Stuart, of the Vermont Agricultural Experiment Station, in his annual report, which has just reached The Horticulturist. This fly does not succumb to the ordinary remedies such as are employed against red spider, aphis and thrips. This immunity to the ordinary fumigants such as tobacco stems or dust, aphis punk, nicoticide, and sulphur fumes, or to the liquid insecticides applied as a spray, is largely due to the fact that during its immature stages of existence it is less easily destroyed than are the other pests mentioned. The experimental crop was started rather late in the season of 1902-03, and hence fewer insects appeared on the young plants than occurred the next year and they were more easily managed.

Frequent fumigation with nicoticide did not rid the plants of the fly during 1902-03, but kept it from great increase or from actually doing serious injury. In 1903-04, however, the plants being started earlier and the insects seemingly more prevalent, fumigations with nicoticide seemed to be of slight avail. Trials were made of aphis punk with meagre results. Fir tree oil, lemon oil, X-all and soap solutions were next tried, at strengths in some cases considerably in excess of those recommended, but with little avail, as the insects seemed to increase rather than decrease. It was decided as a last resort to try hydrocyanic acid gas fumigation. The dose employed was at the rate of 0.2 grains of 98 per cent. potassium cyanide to each cubic foot of air space, or at the rate of about two-thirds of an ounce to each 1,000 cubic feet. Fumigation with the dose mentioned destroyed both the nymph and adult forms of the insect and did no injury to the bearing plants. In all cases the room was fumigated in the evening and remained closed until the following morning. This remedy must be handled with creat care.

In fumigating a second crop of plants just beginning to blossom and set fruit, it was thought best because of the tenderness of the plants to use a weaker dose, the amount being cut down to about .014 grams potassium cyanide per cubic foot, or 50 grams to the room. Notwithstanding this very material decrease in amount of cyanide used, considerable injury was done, for the most part confined to the tender growing snoots and blossoms. This outcome seems in part due to the higher temperature of the house during the fumigation, it having stood at 70 degrees F. instead of 60-65 degrees as at the first treatment. This tendency to injury in high temperature fumigations is corroborative of observations made by others. Subsequent trials with the same strength at lower temperatures did no injury to the plants, yet destroyed the insects.

Cucumbers, lettuce and a mixed lot of plants have been fumigated in the same manner as just outlined with equal satisfaction. Fumigation with light doses, half ounce per 1,000 cubic feet of air space, at temperatures not over 60-65 degrees F. and long exposures is effective, and, in the hands of the ordinary person, is perhaps on the whole more satisfactory than strong doses and short exposures as a remedy against the white fly.

Peas which have been eaten by the weevil may grow, as the insect does not always injure the germ. The plant, however, will be less thrifty, because it should get a good start from the seed, which it cannot get from a half eaten seed. Better feed such peas to the chickens and sow perfect seed.

Damping off of hot-bed melons is caused by closing the hot-bed too soon after watering, especially on warm days. The cells at the surface of the ground become injured and a fungous disease called damping off is induced. Admit fresh air and apply air slacked lime.

THE CULTURE OF POTATOES*

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA, ONT.

One may keep potatoes growing thriftily through a time of drought by thorough cultivation and yet neglect looking after the tops and preventing them from being destroyed by the potato beetle and by the blight and rot. Prof. Zavitz, in an experiment at Guelph, showed that in an average of two years potatoes which were allowed to be eaten by bugs only yielded 60.69 bushels per acre, while those sprayed with paris green yielded 138.20, an increase of 77.50 bushels per acre, and just in proportion to the amount of top destroyed so much will the crop be lessened. Instead of waiting until the vines begin to show very plainly the work of the young beetles the vines should be sprayed just when they are hatching, as it takes a day or two usually before the Paris green takes full effect and the vines by that time are pretty badly eaten.

Not only should we spray to kill the potato beetle, but also to prevent the blight which causes such great loss every year. If growers would only spray their potatoes with Bordeaux mixture their crops would be very much increased. In an experiment during 1904 with 15 varieties it was found that the average yield per acre of the 15 kinds where sprayed with Bordeaux mixture and Paris green was 369 bushels 21 pounds per acre, and the same varieties unsprayed 306 bushels 39 pounds per acre, or a difference in favor of spraying of 62 bushels 42 pounds per acre. Taking an average of three years, the increase has been 94 bushels 30 pounds per acre, which at 40 cents a bushel means $39.80 per acre, the cost being about $9 per acre at the outset for large areas, or a net gain of $30.80.

A combination of Bordeaux mixture and Bug Death gave an increase over ordinary Bordeaux mixture and Paris green of 29 bushels 42 pounds per acre, but the cost of this was nearly twice as much as the former. There was still, however, a net difference in favor of Bug Death and Bordeaux mixture applied together of $3.08 per acre, estimating the price of potatoes at 40 cents a bushel. Bug Death applied alone in 1904 gave an increase of only one bushel 13 pounds per acre, taking an average of 15 varieties, although with some varieties there was a much greater difference, but on the other hand with others there was about as great a difference in favor of Paris green. It is only by averaging that we can get at fair estimates of what the results would be in field culture.

AN EXCELLENT MIXTURE.

The best mixture of those which have been tried for several years to prevent blight and rot and to kill the potato beetle is the poisoned Bordeaux mixture, the formula found best by me being: Sulphate of copper, 6 pounds; lime, 4 pounds; Paris green, 8 ounces; water, 40 gallons.

Although the blight does not usually appear until after the middle of July I prefer using the Bordeaux mixture at the time when the first spraying is made to destroy the young beetles and keeping the vines covered with the mixture from then until September. In 1904 it took five sprayings to do this. If the vines are not kept covered it may happen that the blight will come unexpectedly when spraying is needed. Hence the work should be done thoroughly or not at all.

The first spraying we give is not considered necessary for the prevention of the late blight, but it does, we believe, protect the foliage from other enemies. Five sprayings should not cost more than $9 per acre for time and materials if one has a good spray pump. The Bordeaux-Bug Death mixture which was tried this year for the first time gave better results than Bordeaux mixture and Paris green, but several seasons' tests are necessary in order to show whether it will average better than the Bordeaux mixture and Paris green.

*Continued from the May issue.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. A. Hand, Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

NOTICE TO ONTARIO SUBSCRIBERS.

Owing to the transfer of The Canadian Horticulturist, formerly published by the Ontario Fruit Growers' Association, to an independent company known as The Horticultural Publishing Company, Limited, the fee of one dollar if sent to The Canadian Horticulturist or to Mr. H. B. Cowan will not include membership in the Fruit Growers' Association as in past years. As many of those subscribing in this way consider the membership in the association, together with the annual report, as of considerable value, it would be an injustice to cut them off summarily. However, as the transfer dates back to December, 1904, those who desire the copy of the annual report and other privileges of membership this year in the association will require to drop a card at once to the secretary, P. W. Hodgetts, Parliament Buildings, Toronto. Next year be sure to join your Provincial Fruit Growers' Association and get The Canadian Horticulturist as one of the premiums.

P. W. HODGETTS,
Sec'y Ont. Fruit Growers' Ass'n.

WHAT HAS HAPPENED TO MORGAN?

It would be difficult to determine which has fallen the flattest, the seedless apple boom or the horticultural reputation of Mr. Sampson Morgan, of Broadstairs, England. Following the publication of Prof. Craig's letter in The Horticulturist for April, ridiculing the extravagant claims made in the March issue by Mr. Morgan for the seedless apple, Mr. Morgan was written to and his attention drawn to Prof. Craig's letter and he was invited to reply thereto.

Since then The Horticulturist has waited patiently for the reply which has not come. Lately, something worse than the publication of Prof. Craig's letter has happened. It has been discovered that the two so-called coreless apples which Mr. Morgan sent to Covent Garden Market, and which created so much excitement among the buyers who frequent that historic spot, and which were finally auctioned off for about seven dollars apiece, really possessed healthy seeds and cores larger and harder than those of most apples of their size. When, after the excitement connected with the introduction of these apples had subsided, and they were cut open, the discovery of the cores and seeds created an explosion of ridicule and fun in regard to Mr. Morgan and seedless apples generally, the echoes of which are still to be heard among the papers of Great Britain. The question now being asked is, how many seeds did the apple sent the King contain? No person, however, has been found who has dared to put this question direct.

When Mr. Morgan was beseiged by the British press for an explanation he wired that the fruit cut were not the Spencer seedless apples, to which Mr. Shearn, their buyer, retorted that if they were not the Spencer seedless apples they were apples he paid 30 shillings apiece for. The Horticulturist has come to the conclusion that the reason it has not heard from Mr. Morgan must be that he has either innocently swallowed the seeds of one of his famous apples or that he is on the war path for the Spencer Coreless Apple Company which led him from the paths of veracity into troubles he had dreamed not of.

BRITISH COLUMBIA FALLS IN LINE.

The Canadian Horticulturist has recently been appointed the official organ of the British Columbia Fruit Growers' Association. This means that The Horticulturist is this year the official organ of four provincial fruit growers' associations extending from Prince Edward Island on the east to British Columbia on the west.

This is as it should be. There are many questions connected with the fruit industry in Canada which are of as great interest to the fruit growers in one province as to those in another. There is only one paper in the Dominion which represents the fruit interests. That paper is The Canadian Horticulturist. This means that if the fruit growers in all the provinces desire to keep in touch with one another and to discuss matters and to advocate reforms which are to their mutual benefit they can best

We Want 8000 Subscribers

By December First Next

and

We Need Your Help

United States fruit and floral publications are pushing their paper into Canada, and are constantly asking their readers to help them get new subscribers. **Will not our readers help us in the same way?**

Without saying anything against our United States competitors (they are hard ones to fight) we will state that **The Canadian Horticulturist** is the only paper published, which will keep you fully posted in regard to what Canadian Fruit, Flower and Vegetable Growers are doing. Our aim is to give our readers in each issue the information they are looking for, and therefore our articles are timely. Tell these facts to your friends.

Our Subscription Offers

If you will induce one friend to take The Horticulturist for one year, and send us a dollar for his subscription, we will extend your subscription for six months.

If you send us two new subscriptions we will extend your subscription one year.

Trial subscriptions, from July until the first of next year, will be accepted for 35c. For every trial subscription you send us we will extend your subscription one month.

New subscriptions, from July until January, 1907, or a year and a half, will be accepted for $1.25.

Those of our readers who are taking The Horticulturist through horticultural societies or fruit growers associations will be allowed to retain a liberal commission on all new subscriptions or we will arrange with your secretary to extend your next year's membership.

Free sample papers will be sent to any person who applies for them.

Won't you help us reach the 8000 mark?

The Canadian Horticulturist

do so through their common organ, The Horticulturist. The appointment of The Horticulturist as the official organ of the British Columbia Fruit Growers' Association means that the paper now practically represents the fruit interests of the Dominion and that when it speaks for these interests it does so with the voice of one having authority. This union of forces on the part of Canadian fruit growers will result to their advantage.

Why do some fruit growers succeed in obtaining four and five times as much for their fruit as others? Thousands of Canadian apple growers were unable to obtain over 60 cents a barrel for their 1904 crop of apples. Recently The Horticulturist received a letter from Mr. Eben James reporting a sale of apples made in April by his principals, Messrs. Woodall & Co., of Liverpool, Eng. This sale included 131 barrels of apples sold for Mr. W. H. Dempsey, of Trenton, Ont., which netted a gross average of $5.94 a barrel, or a net value to Mr. Dempsey of $4.50. The article by Mr. Dempsey on "Apple Growing for Profit," which appears in this issue, shows some of the methods Mr. Dempsey has adopted and which have enabled him to make such sales as the one here mentioned.

While the resignations of Prof. Lochhead and Prof. Harrison from the staff of the Guelph Agricultural College will be a loss to that institution it is fortunate that instead of leaving Canada, as so many of our best men have done, they have accepted positions with the Macdonald Teachers' College and College of Agriculture at St. Annes, Que., where Canadians will still reap the benefit of their services. Prof. Lochhead will sever his connection with the Guelph college on July 1 and will probably make special studies, along certain lines of plant diseases and insect life, for three or four months in the laboratories of the Department of Agriculture at Washington, and otherwise prepare himself for his new duties before the new college opens in about a year and a half from now.

The British Columbia Fruit Growers' Association is to be congratulated on the excellent work it is doing as shown by the article in this issue by Mr. Brandrith, the secretary. The holding of a number of meetings at different points in the province each year is an excellent one. The efforts being put forth to ensure for fruit growers the benefits of cooperative effort are in the right direction and will result in benefit to the industry.

Fruit growers join in expressing their sympathy with Mr. Harold Jones, of Maitland, Ont., the well known fruit experimenter and farmers' institute speaker, who is also a director of the Ontario Fruit Growers' Association, in the recent death of his father, at the old homestead at Maitland. Those who knew Mr. Jones, sen., realize what a blow his death means to his son and family.

THE PROVINCIAL HORTICULTURAL EXHIBITION

The second Provincial Fruit, Flower and Honey Show, with the addition this year of an exhibit of vegetables, will be held from November 14 to 18 in Massey Hall, Toronto. Even at this early date indications are that it will prove a great success. The fact that Massey Hall has been secured will add greatly to the interest taken in the exhibition.

A meeting of those interested in the show was held in the secretary's office in the Parliament Buildings early in May. Those present included Messrs. W. H. Bunting, St. Catharines; P. W. Hodgetts and Alex. McNeill, representing the Ontario Fruit Growers' Association; W. A. Emory and Joseph Rush, representing the Ontario Vegetable Growers' Association; W. Couse, representing the Ontario Bee Keepers' Association; Geo. Douglas, W. Jay and T. Manton, representing the Toronto Gardeners' and Florists' Association; H. R. Frankland, W. G. Rook and H. Simmers, representing the Toronto Horticultural Society; R. J. Score, B. Sanders and J. H. Dunlop, representing the Toronto Electoral District Agricultural Society, and H. B. Cowan, representing the Ontario Department of Agriculture.

It was explained by Mr. Cowan that since the show held last fall in Toronto a deputation had waited on the Minister of Agriculture and urged that the show should be held in Hamilton. A second deputation had waited on the Minister and urged that the show should be continued in Toronto. Mr. Cowan stated that he had received a letter from the Deputy Minister of Agriculture notifying him that the Minister of Agriculture had decided to continue the show in Toronto and to give a grant of $1,000 for that purpose and that he desired Mr. Cowan to call together those interested in the holding of the show and to make the necessary arrangements for it.

Mr. Cowan explained that the intention of the Department, when it inaugurated the holding of this show a year ago, was to encourage a Fruit and Honey show. At the suggestion of the florists it had been decided to hold a joint show last year, the Government assisting only the honey and fruit interests financially. Mr. Cowan stated that he had consulted the Minister of Agriculture, who had intimated his desire that the grant this year should be distributed in the same manner except that a portion of the money would have to be given to the recently formed Ontario Vegetable Growers' Association, which he desired should have a part in the show.

Several of those present expressed the view that the government grant should be distributed to the show as a whole, claiming that the floral sections are as much deserving of assistance as the fruit, honey or vegetables.

Mr. Cowan stated that if the representatives of the fruit honey and vegetable interests were willing to pool their share of the grant the Department would offer no objection. After some discussion it was agreed to do this.

In a discussion of the prize lists Mr. Hodgetts stated that the prize list for the fruit section this year should be $800. Mr. Dunlop stated that the prize list for the floral section last year was about $1,200, and that this amount would not need to be increased much, if any, this year. Mr. Couse said the bee keepers offered $200 in prizes last year. Mr. Emory and Mr. Rush believed the prize list for the vegetable growers would be about $200. It was decided to estimate the prize lists at $2,700, rent of Massey Hall, $650; carpentering, $250; advertising and printing, $500; labor, $200; incidentals, $200, making a total estimated expenditure of $4,750. The estimated receipts were placed at: Government grant, available, $800; City Council, $200; Electoral District Agricultural Society, $150; Florists' and Gardeners' Association, $125; public subscriptions, $1,000; Vegetable Growers' Association, $100; Bee Keepers' Association, $50; Fruit Growers' Association, $200; total, $2,625, leaving about $2,125 to be raised by gate receipts.

OFFICERS ELECTED.

The election of officers resulted as follows:

President, R. J. Score, Toronto.

1st Vice-President, W. H. Bunting, St. Catharines.

2nd Vice-President, John Chambers, Toronto.

Secretary, H. B. Cowan, Toronto.

Treasurer, J. H. Dunlop, Toronto.

It was decided on motion of Mr. Rook that the chairmen of all committees connected with the show must be members of the executive committee.

The following chairmen and secretaries of committees were appointed:

Honey—Chairman, Mr. Sibbald; Secretary, Mr. Couse.

Vegetable—Chairman, Mr. Rush.

Floral—Chairman, Mr. Manton; Secretary, Mr. Collins.

Fruit—Chairman, Mr. McNeill; Secretary, Mr. Hodgetts.

Finance—Chairman, Mr. Frankland; Secretary, Mr. Dunlop.

Printing—Chairman, Mr. Rook; Secretary, Mr. Simmers.

On motion of Mr. Manton, seconded by Mr. Dunlop, it was decided that at meetings of the executive committee the representatives present from any organizations interested in the show should have the right to vote for their absentees.

The executive committee will be composed of four representatives from the Ontario Fruit Growers' Association, four from the Ontario Vegetable Growers' Association, and four from the Ontario Bee Keepers' Association, making twelve representatives from these three sections, and four representatives from the Toronto Horticultural Society, four from the Toronto Gardeners' and Florists' Association, and four from the Toronto Agricultural Society, making twelve representatives from the floral section, with Mr. Cowan representing the Department of Agriculture.

A deputation representing the Niagara Fruit Growers' Association waited on the Ontario Department of Agriculture recently and asked for an annual government grant.

Items of Interest

Mr. W. T. Macoun, horticulturist, Central Experimental Farm, Ottawa, sails June 14 for the old country and will be absent two months. While away Mr. Macoun hopes to visit many places in Great Britain and Ireland where experimental and commercial work in horticulture is being carried on. The trip is primarily a holiday, but Mr. Macoun hopes to get much information which will be useful in his work.

Mr. A. E. Sherrington, of Walkerton, attended special fruit meetings arranged for through the Department of Agriculture at Simcoe May 10 and at Burford May 11. The attendance at the Simcoe meeting was fairly large and representative. A strong committee was appointed to take up the work of organization in order that the fruit of the district may be handled on the co-operative plan during the coming season. The meeting at Burford was not largely attended, but those present were most enthusiastic, and an association will be formed at once to handle the apples of the district.

Meetings to discuss matters relating to the fruit industry were held during the latter part of May at Salmon Arm, Enderby, Vernon, Kelowna, Peachland, Summerland, Penticton and Keremeous, B. C. These meetings were addressed by the president of the British Columbia Fruit Growers' Association, Mr. T. W. Stirling, on "Varieties to Plant;" Mr. W. J. Brandrith, the secretary, spoke on "The Planting, Care and Cultivation of the Orchard;" Mr. R. M. Palmer, on "Marketing and Transportation," and Mr. Maxwell Smith, Dominion inspector under the Fruit Marks Act, on "Co-operation in the Fruit Industry" and "The Fruit Marks Act."

The Picton Horticultural Society has distributed neat circulars stating the plants and seeds, etc., being given to members this spring, as follows: Half pound hybrid sweet pea seed, one exhibition double begonia, one single fringe begonia, three pearl tuberoses and three named gloxinias. On the sheet is a detailed description of the premiums given, with cultural hints and directions for their favorable growth.—(W. T. Ross, secretary.

The Late R. W. Lloyd.

The cause of horticulture in Ontario, and particularly in Deseronto and vicinity, has suffered a severe loss in the recent death of Mr. R. W. Lloyd, the energetic and enthusiastic secretary-treasurer of the Deseronto Horticultural Society, whose portrait is here presented. Mr. Lloyd was a native of England, but had lived in this country for 21 years. For eight years he held an appointment under the British Government in India, having to do with the cultivation of cotton. He lived in Deseronto for eighteen years and was always held in the highest respect for his sterling qualities. He always took a lively interest in the welfare and progress of the town and was among the first to join the Horticultural Society after its organization. For some years past he had filled the office of secretary-treasurer with advantage to the society; and his knowledge of plant life and cultivation, which was of a high order, was at the disposal of all enquirers. The society and the town are distinct losers by his death.

The Toronto Society

The last meeting of the Toronto Horticultural Society was one of the best attended meetings held for a long time, many ladies taking an active interest in the meeting. Mr. E. F. Collins prepared a paper on the culture of pansies, but being unable to attend, Mr. J. McP. Ross read the paper and commented on its worth. This paper is published in this issue.

Mr. Jay, Mr. Mills, Mr. Tyrrell and Mr. Uttley spoke of the worth of flowers and gardens. Dr. Fletcher, of Ottawa, will give an address June 6 on Insect Pests, which will be illustrated by steropticon views.—(H. R. Frankland, Pres.

Ottawa Society's First Meeting

The first exhibition this season of the Ottawa Horticultural Society was held in May. A large

WE wish to thank our many customers for a spring business much beyond our anticipations.

Be sure you are on our mailing list for our Fall Catalogue of Bulbs, Ornamental Shrubs, Hardy Perennials, etc.

THE WEBSTER FLORAL COMPANY, LIMITED
HAMILTON, CANADA.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

$10.00 in Cash for Our Readers

Will be given in six prizes to the readers who buy goods to the greatest value on or before **July 15th, 1905**, from the advertisers in this month's issue of **The Horticulturist.**

The first prize of $5 will be given to the reader whose purchases aggregate the most. The remaining five prizes of one dollar each will be distributed in proportion to the value of the purchases of the applicants. A handsome premium will be given to every person who does not win a cash prize.

Readers must notify advertisers that they saw their advertisement in this paper

When applying for a prize, they must inform this office of the name or names of the advertisers they dealt with, and the value of the goods they purchased from each.

Application for this bonus must be made to this office on or before **Jul'y 18th, 1905.**

Address,

ADVERTISING MANAGER,

The Canadian Horticulturist, TORONTO, ONT.

NEW ADDRESS: 239 YONGE ST.

Galbraith Photo Co.

LEADING LANDSCAPE AND COMMERCIAL

Photographers

IN CANADA

Call and see our new premises

239 YONGE ST. TORONTO

number were present, and the display of flowers and plants was a fine one. Mr. W. G. Black, president of the society, delivered an address on the benefits of growing plants, flowers, etc. Superintendent of the government park, Mr. T. E. Davis, gave a particularly interesting and novel address on the arrangement of color in budding plants. The next show will be held June 20, when Dr. Fletcher, of Ottawa, will give an address on What Flowers Do.

An Interesting Meeting

The subject of an interesting address delivered before the Port Dover Horticultural Society recently by Mr. Wm. Hunt, of Guelph, was "Beautifying the Home Grounds, and the Propagation of Plants." Some 20 questions of a practical nature were asked by different members in the audience and promptly replied to by Mr. Hunt.

This society is distributing aster seed this spring to the pupils of the public schools, who are much interested in the fall show, when they will have a chance to show the results of their labors. The society is also giving to members trees, plants and garden seeds.—(S. F. Butler, secretary.

RUBBER STAMPS

The Superior Mfg. Co. - - Toronto, Ont.

Manufacturers

STENCILS

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

FOR SALE—FRUIT FARM OF 200 ACRES, Township of Niagara, will be sold en bloc or divided to suit purchaser. Hundreds of farms, stores, factories, etc., on my list. W. J. Doran, Manning Chambers, Toronto.

GREENHOUSE AND STOCK FOR SALE—TEN thousand feet of glass; one of the best equipped greenhouses in Toronto, located in the best residential sections of Parkdale, large plant trade; residence, stable and everything in good condition. Apply to F. C., care of The Canadian Horticulturist.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . . .

Chas. Ernest Woolverton, Landscape Gardener

GRIMSBY

Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.

Gave 300 Plants.—In May the Hespeler Horticultural Society distributed 300 plants, consisting of coleus and geraniums, to the school children. A very pleasant and interesting meeting was held, at which Mr. Wm. Hunt, of Guelph, spoke, giving many valuable hints regarding seasonable garden topics and plant propagation. This meeting was one of the best of a series of many meetings at which Mr. Hunt spoke this spring.

Proposed County Competition in Apples

It is proposed to have this year at the annual Fruit, Flower and Honey Show, to be held at Toronto in November, a county competition in apples. The County Councils are to be asked at their sessions in June to make a grant of $25 each, which it is proposed to divide into four prizes of ten, eight, five and two dollars, to be limited to growers in the county offering the prize. The exhibits shall consist of not more than five varieties for domestic and five for commercial purposes, each exhibit to consist of five named apples on a plate. The apples shall be judged by points, as follows: Form, 5; size, 15; color, 20; quality, 15; uniformity, 20; freedom from blemishes, 25; total, 100. Ten points will be added for correct naming.

The Ontario Fruit Growers' Association will pay express charges from the point of shipment to Toronto and will keep the fruit in cold storage till the show is held. Growers will simply have to pack their fruit and deliver it at the nearest express office, when their responsibility ceases. There will be no entry fee.

The Ontario Fruit Growers' Association has also arranged for delegations to wait on every County Council at their June session to ask for the grant. Fruit growers are invited to act on these county deputations.

The proposal has met with much favor, and it is needless to enter into any argument to show what an advantage it would be in giving an impetus to the fruit industry in all parts of the province. The money given by the County Councils will all come back to their counties in the form of prizes.

Fruit Crop Conditions in Ontario

Special crop reports received by The Horticulturist from correspondents in the Niagara and Leamington districts under dates as late as May 23 and May 24 indicate that crop prospects in those important fruit sections are bright. Late frosts have done some damage, but at the date of writing the correspondents did not consider the damage serious. The reports are as follows:

QUEENSTON.

H. St. C. Fisher: The prospects for cherries are very bright. The trees have blossomed well, and if all goes well there will be a large crop. Strawberries are rather light, as not many were planted this spring. I have seen very few good patches. The late frosts will greatly lessen the crop. All other crops are looking well.

SIMMERS' SEEDS

GROW

and are the best that grow. We have the most complete assortment, and the finest strains of garden and flower seeds on the market. Catalogue describing such, free for the asking. We can also supply

Roses
Shrubs
Vines

Fruit Trees
Ornamental Trees
Evergreen Trees
Herbaceous Plants
Dahlia Roots
Gladiolus Bulbs
Etc., Etc.,

of the very best stock at moderate prices. Try us for success.

J. A. Simmers

143, 145, 147, 149, 151 King St. E.,

Toronto, Ont.

"CANADA'S PREMIER SEED HOUSE"

JORDAN STATION.

C. M. Honsberger: Strawberries have wintered in fine shape and are full of bloom and promise a full crop. A light frost in the morning of May 21 injured some blossoms, but to no serious extent. Peaches are in full bloom and promise well where trees were not allowed to overbear the past two or three seasons. Cherries are literally covered with bloom, more especially the Early Richmond, which bore a heavy crop last season. The weather for fertilization was fine, so much so that the assistance of the busy bee was not required.

FRUITLAND.

Jos. Tweddle: Cherry buds came through the winter in excellent shape, with full bloom and weather mostly fair during bloom. We should have a splendid crop. Strawberry prospects are first-class. We had a heavy white frost May 21, but I have heard of no particular damage to strawberry bloom. Other fruits, including apples, are looking well, and should yield a heavy crop. Grapes are only fair; quite a proportion of buds seem to be dead.

BURLINGTON.

A. W. Peart: The general fruit outlook is bright. Trees have wintered well and bloom appears sufficiently plentiful, especially with plums. The prospect for cherries is excellent, notably the sour varieties. Apples, pears and peaches also promise well. Strawberries generally passed the winter in good condition and their appearance indicates a fair return. Blackberries, raspberries and currants promise an average crop.

W. F. W. Fisher: Strawberries, vines last season ran moderately well, wintered fairly, promise a two-third crop. Cherries, trees thrifty, bloom heavy. Pears, trees fairly healthy, bloom medium. Plums, trees fairly healthy, bloom heavy. Apples, trees look well, very full of bloom. Raspberries, injured some by winter, two-third crop. Blackberries, promise well.

LEAMINGTON.

E. E. Adams: The Early Richmond cherry shows little or no fruit, but the Montmorency is all right. Strawberries will be a good crop, providing we have enough rain to develop the fruit fully at ripening season.

THE SPRAMOTOR MACHINES.

There was a time not long ago when it was necessary to go into foreign countries for any special machinery. In many lines this is changed. In 1896, when the Spramotor Company won the Government spraying contest at Grimsby, there were 11 makers of spraying machinery in Canada. All of these have tried to sell out to the Spramotor Company, but none were bought. It was thought that a specialty like the Spramotor could not live in Canada owing to the restricted market, but by adhering to

JAPAN SNOWBALL.

CANADIAN GROWN

Trees, Plants and Vines

All kinds of

Nursery Stock

A fine assortment of

Ornamental Trees and Shrubs

Read our new illustrated catalogue; a post card brings it.

Salesmen wanted.

HELDERLEIGH NURSERIES E. D. SMITH, - Winona, Ont.

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

original lines and cultivating the foreign market a good business has resulted, sufficiently large to keep a staff of expert mechanics at work the year round. Four years ago the United States trade was large enough to warrant the company starting in that market, and each year since the trade has doubled, so that it is now eight times what it was the first year. When it is remembered that this is the hardest market in the world to capture it will be seen that the Spramotor has merit.

Over 5,000 Spramotors have been supplied to one manufacturer of paints in the United States to apply their product. Mr. W. H. Heard, inventor of the Spramotor, is the possessor of many patents in this and foreign countries, but the business is built entirely upon a commercial basis. Not one cent has been added to any article made by the company because of its being patented; the selling price being based entirely on the cost of production.

Every Government in Canada has used the Spramotor and pronounced it good, and use no other. The general Government at Washington, together with all the State Governments in the United States, use the Spramotor.

There are more Spramotors in use in Canada than all others combined. Mr. W. S. Blair, of Nova Scotia, and A. McNeill, Chief Fruit Division, Ottawa, say that the Spramotor has contributed as much to the success of the fruit growers in Canada as any other cause, by making it possible for them to save a larger percentage of their crops than would otherwise be possible. The absence of complaint against spraying machinery in Canada is largely attributable to the effort of this company, whose products are recognized as the standard of excellence. A catalogue of 80 pages may be had on request.

ARE DOING A LARGE BUSINESS.

A recent visit to Gammage & Sons, of London, found this firm in the midst of their spring plant trade. Thousands of plants were being shipped to all parts of the Dominion—we noticed cases of plants addressed to points in Nova Scotia and New Brunswick in the east and Winnipeg, Nelson and Vancouver, B. C., in the west. Nor is their trade confined to Canada alone, a number of shipments having been made to the United States.

Pelargoniums, of which the firm have made a special feature this season, have proved a great success. Additional time and space will be given to them in the future. Preparations are well under way for planting chrysanthemums and carnations. Said Mr. Gammage, "We were handicapped last year with building operations, having added 40,000 feet of glass, but this year we are taking time by the forelock as, having no building to do, we can give our stock proper attention."

SAFE-LOCK SHINGLES

make a perfect roofing for HOUSES, BARNS, STORES, etc. Weather-proof, ornamental, lasting in quality, protect from fire and lightning.

If people would realize the danger in using wooden shingles, and making fire-traps of their buildings, they would use exclusively Galvanized "SAFE-LOCK" Shingles. They are easily applied; add to the handsome appearance of any building; keep rainwater clean, as no dust adheres to them; should easily last fifty years, without any painting or attention, as they have no parts to get out of repair, and interlock each other on all four sides. *They protect from lightning*, and give their owners a contented mind, which makes up for the difference in first cost as compared with wooden shingles. In the long run they are the cheapest roofing sold.

Send us rafter length and width, for estimate, and we will make you an interesting proposition. Catalogues mailed free and samples sent by express, you paying the express charges, which will be allowed on first purchase.

The Metal Shingle and Siding Co., Limited
Preston, Ontario

Manufacturers of all kinds of Metal Roofing, Corrugated Sheets, Siding, Ceilings, Ventilators, Tanks, Stanchions, Watering Bowls, etc.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

FAVORABLE REPORTS.

Some reports just received on Arnott's Concentrated Horticultural Manure :

From Messrs. Geo. Dobbs & Son, Auburn, N. Y., U. S. A. : "The 25 pounds we ordered last fall have given us excellent results. Please send us 100 pounds more."

From the Fenwick Nursery, Halifax, N. S. : "Everything in which the "food" was applied is doing well. The Calla and Easter lilies were beautiful. Chrysanthemums are looking well, also hydrangeas, fuchsias, geraniums and bench roses."

From the general superintendent department of parks and boulevards, Detroit, Mich., U. S. A.: "The sample of Arnott's Concentrated Horticultural Manure gave satisfaction."

A LADDER IN THE ORCHARD.

So long as fruit trees grow taller than unassisted man can reach so long will it be necessary for him to have at hand some assistance in reaching the higher parts of the tree. Before the leaves are put forth in the spring the careful orchardist prunes his trees and examines every part carefully for signs of disease and for the rings of eggs of the tent caterpillar. Later he may require to get to the high branches to relieve them of an overload of fruit which threatens to break the tree or to leave the quality of fruit inferior. And later still he must climb to where the ripe fruit is and bring it down for use. It will not do to wait till it falls down to him or to knock it down with sticks and stones as we did when we were boys.

For all these purposes he must have a ladder, and a ladder which is light, handy and strong and which can be put up in the middle of the tree as well as against the outside. The old-fashioned single ladders have served their day, but with the spraying machines, binders and the cream separators have come in the extension ladder. The fruit grower who has only one tree should have an extension ladder. It will pay him handsomely, and proportionately it will pay the man who has many trees.

Favorable Season for Packing.—We have had a splendid season for packing, writes Mr. E. D. Smith, of the Helderleigh Nurseries, at Winona, and have got out our stock in excellent time and in splendid shape. We had 150,000 trees dug in the fall and heeled in my above ground cellars. This enabled me to get the goods out to the planters over the country earlier than could possibly be done if everything had to be done in the spring, and the stock was in better shape as it was not damaged by the winter, as it sometimes is, although there was very little damage last winter.

I take a number of the best fruit journals published in the United States, but I consider The Canadian Horticulturist the most complete and valuable of any.—(J. L. Hilborn, Leamington, Ont.

Protect Your Lawns

ORNAMENTAL WROUGHT IRON FENCES

MADE TO LAST A LIFETIME.

PRICES FROM $1 PER FOOT UPWARDS.

CANADA FOUNDRY COMPANY, LIMITED

HEAD OFFICE, TORONTO

District Offices: Montreal, Halifax, Ottawa, Winnipeg, Calgary, Vancouver, Rossland

The Canadian Horticulturist

JULY, 1905

VOLUME XXVIII NUMBER 7

HOW TO PACK AND WHERE TO MARKET EARLY APPLES*

J. F. SCRIVER, FRUIT INSPECTOR, HEMMINGFORD, QUE.

I HAVE been in a good position the last three years to study this question. I have seen the apples on their way to market, the way they were packed, the condition they were in, and have also received reports of the condition in which they were landed in the Old Country and in Winnipeg. I have also seen most of the returns and am possibly better able to decide the best way to pack and the best markets than most growers or buyers.

By early apples I mean Duchess, Wealthy, Alexander and St. Lawrence, and would also say a few words on the Fameuse. These are the only early apples that can be handled with any profit. More than half the Duchess raised in Quebec go to waste every year. You will say that this is because there are too many raised. I agree with you there, but I also say that, if you know how to handle them, three years out of four, there is a profitable market for them. Last year was an unfortunate year for the exporters of apples, especially the early varieties. The exceedingly large crop of apples in England and the continent kept prices very low. Even with these drawbacks good Duchess, properly put up, brought fair prices in Glasgow.

Glasgow is the best market in Great Britain for our early apples. The trouble with most of the Duchess shipped last season was that they were immature and too small and green. In exporting you must allow them to become full grown, and fairly colored, being careful, however, to pick them before they are too ripe. If your apples are a good size and fairly well colored, I would certainly advise you to put them up in boxes. If not real No. 1, put them up in barrels, as it never pays to put up poor fruit in boxes. Ship in refrigerator cars, and cold storage on ships.

If you pack in barrels use the eight hoop barrel; pack barrels thoroughly while filling and do not use too much pressure. Everything I said in regard to packing and shipping Duchess apples to the Old Country applies to shipping to Winnipeg. Winnipeg is a better market for small green stock than the Old Country. The first Duchess shipped to Winnipeg brought $2.50 to $2.75 net, but the market became overloaded and the Duchess brought very low prices. I heard of one box which netted 16 cents. The large shipments to the west were caused by low prices in the Old Country, which are not likely to occur again for some years. Last year Winnipeg buyers did not receive half the Duchess they wanted.

The barrel is the best package to use for the shipment of apples to the west, although some shippers have secured good returns

* An address delivered at the last annual meeting of the Quebec Pomological and Fruit Growing Society.

by shipping in boxes. The apples should be sent in refrigerator cars or the cars iced before loading, because, although the railroads agree to do this, and you have to pay for it, sometimes the bunkers are not well filled. Your apples become heated, and the car which might have brought you a good profit entails a heavy loss.

The demand from Montreal and smaller towns for these apples is limited. I sold 200 baskets, 12 to the barrel, in Montreal last summer at 40 cents, netting about 30 cents, which paid well. The next week, however, prices were down to 25 cents, which did not pay.

When Duchess trees are overloaded, as they often are, it is a good plan to pick and ship some of the best in baskets about the first of August. Those left on the trees will grow much faster and be ready to ship in two or three weeks.

A GOOD VARIETY.

The Alexander, I consider, one of the best, if not the best money maker we have in Quebec. If I was setting out an orchard I would set a good proportion of Alexanders. Ontario apple growers and probably some of the Quebec growers may dispute me a little, but the Ontario men must understand that the Quebec Alexander is altogether a better apple in many ways than its Ontario brother, especially in its carrying qualities. It is also more even in size and of better color.

The Alexander tree is perfectly hardy, a good bearer, and the fruit is 75 per cent. to 90 per cent. No. 1. It is never affected by scab, and very little by worms. When picked in time and picked properly these apples always land in the Old Country in good condition. They brought the highest price of any apples sold in the Old Country last fall. One carload of 40-pound boxes, four to the barrel, brought $1.25 net, f. o. b. Montreal. Another carload, in barrels, made a net of $3.85. All the Alexanders shipped in proper time brought paying prices, even in last year's poor market.

I would strongly advise shipping all Alexanders in boxes. It is almost impossible, on account of their large size, to pack them in barrels, ship them any distance, and prevent them from becoming slack. Pack them in layers in boxes and tighten with a little excelsior. I would recommend Glasgow as the best market, although they also do well in Winnipeg and the west when landed in good condition.

One of the best points of this apple is the large proportion of No. 1 apples. A farmer in Hemmingford last fall sold his Alexanders for 90 cents a barrel on the trees. From eight young trees he had 30 barrels of No. 1, two barrels of No. 2, and only one barrel of culls. A neighbor of his had 46 barrels of No. 1 and three barrels of No. 2. I never heard of this being equalled in any season by any other variety of apples. These apples should always be shipped in cold storage and in refrigerator cars.

(Continued on page 277.)

It is my opinion that if cooperative associations will keep their grades up to the standard, buyers will soon hunt for their brands. Buyers are anxious to obtain good brands and will naturally go to the houses that have the best name for good packing and high-class goods. The box is certainly the fruit package of the future.—(H. W. Dawson, commission merchant, Toronto.

"There is considerable difference of opinion with reference to the robin in the Eastern States," said Mr. A. N. Brown, of Delaware, to a Horticulturist representative. "An anti-robin bill was defeated in New Jersey by the women and children of the state, who secured large numbers of signatures to petitions against the bill. I expect, however, to see it pass yet."

THE ROBIN AND THE FRUIT GROWER

C. W. NASH, TORONTO, ONT.

THE ever increasing number of insect pests, both native and imported, which prey upon our crops, and the loss sustained by farmers, gardeners and fruit growers by reason of their ravages, has compelled crop producers to turn their attention seriously to the study of the natural laws which govern the production and destruction of this form of animal life. Careful investigation, by men whose training has properly qualified them for the work, shows that nature always maintains an equilibrium between all form of life, both animal and vegetable, so that no one form shall exist in sufficient strength to exterminate another. That birds, which are wholly insectivorous, or which never feed on the fruit or other parts of cultivated plants, are beneficial, may be accepted without question; but great difficulty has sometimes arisen in determining the exact status or value of birds which feed on insects and vegetable products in varying proportions. Much depends on the personal interest of the people whose testimony is given and also on local conditions which can not be given general application. Thus it is we find some fruit growers loudly condemning certain birds as very injurious to them in their locality, while other fruit growers in a different district, and farmers and gardeners generally, are perfectly certain that these same birds are of the greatest value to them as destroyers of noxious insects.

VALUE OF THE ROBIN.

The best known and most familiar bird in this debatable class is the robin, and opinion is very strongly divided as to its utility. Some fruit growers condemn this bird with great emphasis; others weigh its merits and demerits more carefully and assert that it much more than pays for the fruit it eats by the destruction of insects.

Robins under certain circumstances do take a large number of cherries, strawberries, raspberries and some grapes, thereby causing individual fruit growers some loss, but the question remains whether or not the robins by their work throughout the season, and the benefits they confer on other classes of the agricultural community, do not more than compensate the community for the loss sustained by the few, and further, whether or not the fruit growers cannot protect themselves against loss by robins without destroying them.

As to the first question the case against the robin has been very strongly, and I think fairly, put by a large fruit grower in the United States, who is an uncompromising enemy of the bird. This gentleman shot a number of robins while they were feeding on his fruit and examined the stomach contents of those killed, the result showing the percentage of fruit and insects contained in each. When the birds were actually engaged in feeding on small fruit 84 per cent of fruit and about 16 per cent. of insects were found, a much larger proportion of fruit to insects than has ever come under my personal observation and larger than I have elsewhere seen recorded

If all the robins in the country consumed as large a proportion of fruit as these birds and fruit growers suffered a proportionate loss, then there would be just cause for complaint against the robins. We know, however, that even during the height of the strawberry and cherry season that the birds rarely take as large a percentage of fruit as this, and we also know that the large growers rarely suffer any appreciable loss.

PLENTY OF EVIDENCE.

The question as to what is the true status of the American robin with regard to agriculture and horticulture has been under investigation in the United States and Canada for over 40 years, so that there is no lack of evidence on which to arrive at a conclusion. The result of these investigations shows unmistakably that, except during the months of June and July, when the strawberries

and cherries are ripening, the robin is of the greatest possible value to the country. From early March until the middle of June robins' food consists of insects and such berries as may hang on the trees through the winter. Three specimens shot by me on April 3 last year had each eaten 150 to 200 small dark caterpillars. One shot April 11 contained one large spider, a large number of small beetles, principally weevils, and some mountain ash berries. In May and the early part of June I have always found the robins' food to consist chiefly of cut worms, wire worms, white grubs and earth worms; at this time the birds are feeding their young and they then destroy a vast number of these injurious farm pests. This is one of the robin's greatest merits, because of all our insects the underground cut worm is about the most destructive, for in feeding it just comes above the surface and cuts off the entire plant, or if the plants are very young and the stems small it cuts off a half dozen or more, only eating a small section out of the stem of each, leaving the plants dead on the ground.

Effectual remedies against their attacks are very difficult, and in some cases impossible, to apply, so that for the most part we are compelled to rely on the ground feeding birds, of which the robin is an example, to keep them in check.

In June, 1889, I experimented with a young robin shortly after it was able to feed itself, for the purpose of ascertaining just what amount of insect food it would require daily when at that stage of growth. On June 9 the bird weighed exactly three ounces. From time to time during that day I gave it all the cut worms it would eat, having previously weighed them. The grubs averaged 30 to the ounce, and the bird ate five and a half ounces of them in that one day. Had the bird been at liberty it would probably have eaten some insects of other species and fewer cut worms, but this shows the amount of insect food required by a young robin when growing. The average number of young in a brood is four, and there are usually two broods in a season. A very simple calculation will give a good idea of the number of insects destroyed while the young are being raised.* It is the young of the first brood after they have flown and are left to their own resources which are apt to visit the strawberry patch and cherry trees, and it is no doubt very provoking to the fruit grower on a small scale, to find them helping themselves to his scanty supply. Towards the end of summer and through the autumn young and old congregate in flocks and feed on insects and various berries borne by wild shrubs. Late in the fall they will sometimes visit the vineyard, but not as a rule until after the marketable grapes have been gathered.

EXTENSIVE INVESTIGATIONS.

The biological survey of the Department of Agriculture at Washington has conducted an exhaustive enquiry into the food habits of the robin. The result of this has been summarized by Prof. F. E. Beal, of that department, who says: "An examination of the stomachs of 330 robins, collected in various parts of the country, shows that cultivated fruit forms but a very moderate percentage (less than eight per cent.) of their diet, and that practically all of this is eaten in June and July. Vegetable food forms nearly 58 per cent. of the stomach contents, over 47 per cent. being wild fruits. Cultivated fruit amounting to about 25 per cent. was found in the stomachs in June and July, but only a trifle in August. Wild fruit, on the contrary, is eaten in every month, and constitutes a staple food during half the year. No less than 41 species of wild fruit were identified in the stomachs.

The depredations of the robin seem to be confined to the smaller and earlier fruits,

* Birds of Ontario in Relation to Agriculture. C. W. Nash, Department of Agriculture, Toronto, Ont.

and few, if any, complaints have been made against it on the score of eating apples, peaches, pears, grapes or even the late cherries. By the time these are ripe the woods and hedges are teeming with wild fruits which the bird evidently finds more to its taste. Cherries and strawberries, unfortunately, ripen so early that they are almost the only fruit accessible at a time when the bird's appetite has been sharpened by a long continued diet of insects, earth worms and dried berries, and it is no wonder that at first the rich juicy morsels are greedily eaten."

THE CASE PRESENTED.

The case, therefore, stands in this way: It is admitted that during a part of June and July (say for about 30 days) the robin consumes a certain amount of small fruit. To this extent the fruit grower is a loser. The farmers and market gardeners, however, lose nothing by these birds, but on the contrary have to depend on them principally to keep in check the underground insects which are so injurious to their crops. Except during the period stated the fruit grower also benefits greatly by the robin's work. Limit the question then to the fruit grower alone and how does it stand? Suppose each robin ate two ounces of cultivated fruit each day for 30 days, which would be a remarkably liberal allowance. This would give three pounds 12 ounces for each bird, worth in money about, for strawberries 15 to 20 cents, and for cherries of the best class 30 to 40 cents. As against that every cut worm previously eaten by the bird would have done damage to probably as large an amount if it had been allowed to fulfil its destiny, and then there are the myriads of other insects which the bird has eaten to be taken into consideration.

Speaking generally, therefore, it must be considered that the robin ranks as one of the most potent factors in preventing the ravages of insect pests.

It may sometimes happen, however, that an individual fruit grower may find that the quantity of fruit taken by the birds is more than he can well bear, although he realizes that generally the robins are beneficial to himself and to the country. When this happens it usually arises from the fact that a great number of birds are concentrated on too small an area, in which case they draw too heavily on the small resources open to them.

A SIMPLE REMEDY.

Is it possible then to save the birds and at the same time reduce the loss of fruit so that it shall not be a matter for serious consideration? This problem has been solved by the easy method of providing the birds with fruits which are useless to us, but which they prefer to those we consider the choicest. Probably the two best trees for this purpose are the common red cherry and the Russian mulberry. These are both vigorous growers and profuse bearers, ripening their fruit early, and the birds prefer their berries to any of the cultivated sorts. The mulberry is particularly attractive to them, flavorless though it seems to be.

By being a little liberal in planting these trees about the country we can save the small fruits and at the same time have about us robins enough to keep in check the most dangerous enemies of our staple crops of farm and garden.

An advantage of clover growing in an orchard in autumn is that much of the plant food in the soil which has been liberated and made more easily available by the constant cultivation during the early part of the summer, is prevented from leaching by being used by the growing plants, the clover thus becoming a "catch crop" as well as a cover crop.—(W. T. Macoun, Central Experimental Farm, Ottawa.

REPORTS AND BULLETINS

A NUMBER of very interesting bulletins and official reports reached The Horticulturist during June. The annual report of the Inspector of Fumigating Appliances for Ontario, Mr. P. W. Hodgetts, shows that the enforcement of the Fumigation Act has driven several smaller nursery firms out of business. Inspector Hodgetts reports that in every case the nurserymen are seeing that the stock sold bears the certificate of fumigation. Fruit growers are well pleased with the work done, and the members of the Niagara District Association recommended that if the inspector found scale on nursery stock the previous year the facts should be made public through The Canadian Horticulturist. The report contains a list of Ontario nurseries and may be had by application to the Department of Agriculture, Toronto.

Bulletin No. 115, of the Experiment Station, Burlington, Vermont, discusses "Disease Resistant Potatoes." After many experiments to show stem resistance to disease and tuber resistance to rot and the chances for increasing this resistance it draws the following conclusions: (1) Some varieties are less subject to vine injury than others, (2) some show greater resistance to rot than others, (3) some show close relation between resistance of vine to disease and resistance of tuber to rot, (4) selection has not given visible increase of resistance.

Bulletin No. 113 of the same station deals with spraying mixtures and concludes by giving a spray calendar. Preparation of sprays, objects of spraying and such questions are fully explained. The bulletin is worth writing for.

"Potato Spraying Experiments in 1904," No. 264, New York Experimental Station, Geneva, N. Y., gives a comprehensive review of extensive experiments carried on with Bordeaux mixture for late blight and potato rot. At the station five sprayings gave an increase of 233 bushels per acre, and three sprayings an increase of 191 bushels per acre. In 14 experiments on farms including 180 acres, the average gain was 62¼ bushels and the average cost for each spraying 93 cents per acre. In 41 volunteer experiments which farmers carried on, including 363¾ acres, the average gain was 58½ bushels per acre and the average cost 90 2-3 cents per acre. Judging from these figures no potato grower can afford to neglect spraying. The bulletin is a valuable one.

The Experiment Station, Orono, Maine, in bulletin 108, deals with "Orchard Moths," giving notes on common orchard caterpillars and some insect eating birds. Bulletin No. 109, from the same station, discusses the "Apple Maggot and Other Insects." Preventive and remedial measures are given. Allowing hogs and sheep to eat the windfalls from August until the crop is harvested is mentioned as being one of the cheapest and most effective remedies.

The Agricultural Experiment Station of Urbana, Illinois, discusses "The Curculio and the Apple" in Bulletin 98. The life history and habits are fully given, as well as characteristics which distinguish it from the plum curculio. Neglect of pruning, cultivation, spraying and fertilizing engenders conditions which favor its multiplication. Spraying with arsenical poisons has a beneficial effect in an isolated orchard. Destruction of fallen fruit and surface cultivation are mentioned as very efficient remedial measures.

I have never used boxes for shipping apples, and shall not as long as I can get barrels at 50 cents or less.—(Irvine Hicks, South Bay, Ont.

The Horticulturist is the best fruit magazine I have ever read.—(A. A. Bligh. Waterville, N. S.

The Canadian Horticulturist is getting better all the time.—(Geo. Shuert, Brantford, Ont.

COOPERATIVE PACKING BY GROWERS

D. JOHNSON, PRESIDENT FOREST FRUIT GROWERS' ASSOCIATION, FOREST, ONT.

IN the early part of last season the Forest Fruit Growers and Forwarding Association intended to have each member pack his own fruit under inspection. If any package was found not properly marked it was to be rejected or marked according to its proper value. The inexperience of some, however, and the diverse grading caused the association to adopt the central packing house.

For this purpose a rink was rented and to this each variety of apples was brought as the fruit matured. It was gently packed in barrels, with the head slipped on by hand, and hauled either in racks with springs or with some straw in the bottom of the rack. Each man's apples were kept in a separate row and the man's name and the variety of the apples were written on the top with pencil. The number of barrels of unpacked apples was credited each grower on the books.

In packing, each man's apples of a certain variety were emptied on the packing table, where they were carefully graded by girls. The XXX were put in a basket to their right, the XX in a basket to their left, and the culls in bags attached to the tables.

Each man working in the packing house had his special work to perform for which he was responsible to the manager. It was the duty of one man to properly face, nail and cleat each barrel of fruit required. The facing had to be a fair representation of what was in the barrel. Each hoop had four nails, each head six and each cleat six.

THE HEAD PACKER'S DUTY.

It was the duty of the head packer to empty baskets, shake down the fruit in the barrels and see that the grading was properly done and that each grower was credited with the full amount of packed fruit of each variety and grade. The shaking down was done by setting the barrel on a plank. Another man was responsible for the facing of the pressed end and for the pressing in of the same. A third man had charge of the stenciling and nailing in of the

Shipping Fruit on a Niagara District Fruit Farm.

Packers getting fruit ready for shipment at J. F. Brennan & Son's fruit farm, Grimsby, Ont., are shown. On the left is Mr. Brennan, who superintends the packing. He has adopted the California style of packing, and has been repaid by the proud distinction of landing the best packed Ontario fruit on the Winnipeg market of many large shipments. He has also won high awards at the national and international exhibitions and has received orders from many parts of the United States and Canada for his celebrated "Ashland Fruit."

head. He also had to check off each barrel and record the name of the owner, the variety and the grade as it was loaded on the dray for the car. The manager assisted in every department and was in a position to know exactly the quality of fruit packed in each grade.

The culls were sent to an evaporator, and the money received from this source was used to pay general expenses such as the cost of packing, which amounted to about seven cents per barrel. This may not seem fair to the man with many low grade apples, but when we consider that it costs more to pack poor apples than good ones it cannot be considered an injustice.

The central packing house is perhaps more expensive than the old system of allowing each member to pack his own fruit under inspection, but as dealers have long desired such a system we expect the greater uniformity will cause them to pay enough more to meet the extra expense twice over.

The Forest association has been complimented many times on the good quality of its fruit and on the packing done last season. Our members realize the benefit of spraying, and to ensure a high class fruit this season are spraying at least four times —twice before and twice after blossoming. We expect our output this fall will be ahead of that of last year, and feel sure that the better quality will be appreciated to its proper value by the trade.

Top Grafting the Pewaukee

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

I have about 40 trees of Pewaukee apples which bear heavily each year, but before maturity a high wind removes fully two-thirds of the fruit. I have been told that as the trees get older they hold their fruit better, but if it drops as badly as it does now I wish to graft them to Ontario, Spy or King. Which of these would you advise me to use? What is your opinion of the Baxter apple?—(J. B., St. George.

The characteristic you describe in the Pewaukee of dropping from the tree is one of the worst features of this variety, and as the fruit itself is not of the best quality I certainly would recommend in a section, such as yours, where better varieties can be grown, that such trees be grafted over. All of the varieties you mention are excellent, but of the three I would prefer the King, although this too is liable to drop during heavy winds. This variety is about the same in rate of growth as the Pewaukee, and should work well upon it, and, no doubt, the productiveness of the Pewaukee would help to make up this defect in the King. The Ontario is hardly equal to the Pewaukee in rate of growth, while the Northern Spy is much stronger, but any of these should do well on Pewaukee stock. The Baxter is a large, showy red apple, which originated near Kingston, and is well adapted to that section of the country. It is, however, quite subject to scab, and I would not recommend it for your section of the country, where apples of better quality may be grown.

Cultivation and Cover Crop

W. H. DEMPSEY, TRENTON, ONT.

CULTIVATION should be commenced as early in the spring as possible, with disc cultivation or gang plow not more than four or five inches, and continued each week or 10 days with a light harrow through July till the middle of August. Then a cover crop may be sown of red clover, barley, oats or peas, which will aid the trees in ripening, and by holding the leaves and snow prevent alternate thawing and freezing and lessen the depth to which the frost penetrates, thus carrying trees through the winter uninjured which might otherwise be killed. If the season is dry and trees heavily loaded it would be better to delay sowing the cover crop, as it would take too much moisture from the trees and cause the fruit to cease growing and prevent its development to fair size.

The Spraying Experiments

P. W. HODGETTS, B. S. A., DEPARTMENT OF AGRICULTURE, TORONTO, ONT.

THE second series of sprayings in connection with the experiments for the prevention of grape rots has just ended at Mr. Shearer's farm near Niagara, as outlined in the last issue of The Horticulturist, are being carried on by the Department of Agriculture at the request of the fruit growers of the Niagara district, whose vineyards have suffered severely the past two seasons through the attacks of the black and brown rots.

A Forest Spraying Outfit

The spraying outfit of Mr. William Frazer, of Forest, Ont., one of the most successful fruit growers in this district, is shown here. Mr. Frazer may be seen in his spraying uniform on the elevated platform. The Forest growers find the elevated platform a great help in doing efficient spraying.

During April a number of vineyards were visited and a few rows of grapes in each were sprayed with the copper sulphate solution. Starting June 13th, just before the blossoms opened, we again made the round from Winona to Niagara and Stamford, a distance of over 50 miles, with the cart spramotor. Over 4,000 vines at eight different points were sprayed. The standard Bordeaux mixture was used throughout for the grapes.

Soda Bordeaux was applied at Mr. Robertson's farm in St. Catharines to a number of cherry and plum trees to control the rot which is developing seriously owing to the prevalent moist, sultry weather. This mixture is made up of 40 gallons water, 4 pounds copper sulphate, with enough caustic soda or lye (ranging from 18 to 24 ounces according to its strength) to make the whole slightly neutral. The soda replaces the lime, and these will not discolor the fruit. It is claimed that this mixture will not hold to the trees and foliage like the lime Bordeaux, but on the other hand it is more easily prepared, will not clog the nozzles, and may be used almost till the fruit is ripe.

Care must be exercised, however, in testing its strength when prepared. The use of litmus paper in this connection will be readily explained by any druggist and the test is simple. The blue paper should retain its color when dipped in the prepared solution, while the red paper should, under the same conditions, turn blue. Owing to some trouble experienced by the Winona growers fruit men will do well to apply this test to any of the soda preparations.

Hairy Vetch for Green Manure

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

Kindly advise me if hairy vetch would be good to plow under and then plant strawberries the following spring. What does the seed usually sell at and when is the best time to sow it?—(J. B., St. George, Ont.

A crop of hairy vetch grown this year and turned under next fall should leave the ground in good condition for strawberries the following year, although if the ground is in fairly good condition it might be possible to raise some early crop on the ground this year, such as early potatoes or early peas, and follow with the vetch as a late catch crop. Vetch grows well late in the season and makes a good mat of vegetable matter to plow under when sown as late as the middle of August. The seed this year is quoted at $4.50 to $5 per bushel.

Remedy for Black Knot

H. S. PEART, B.S.A., O.A.C., GUELPH, ONT.

Will turpentine and sulphur mixed painted on growing black knot on plum trees prevent further growth and kill the spores ? Can a better mixture be suggested ?—(W. C. Archibald & Sons, Wolfville, N. S.

Black knot is a fungous disease, the nature of which has been thoroughly understood for many years. The spores of the disease are carried by the wind in early summer. Spraying the trees with Bordeaux mixture in spring and early summer will prevent fresh infection. Once the disease is established there is no certain remedy except cutting out and burning the knots. Turpentine does not dissolve the sulphur, hence the mixture is no better than turpentine alone.

The use of such substances as turpentine and crude petroleum are not to be commended, as they nearly always injure the tree. United effort on the part of the plum and cherry growers in cutting out and burning knots as they appear and spraying with Bordeaux mixture early in the summer will soon rid a section of the disease.

Thinning and Propping

PROF. H. L. HUTT, O.A.C., GUELPH, ONT.

What is the best method of thinning fruit ? Is there any serviceable implement made for thinning purposes ? What is the manner in which trees are best propped ?—(L. B. Pangman, Salmon Arm, B. C.

There are two general methods of thinning fruit, first by regulating the number of fruit spurs and consequently the amount of fruit by pruning, and second, by removing the extra amount of fruit as soon as it is sufficiently formed to judge of its character. Various devices have been suggested for this purpose, but none of them are as good as going over the fruit and picking it by hand in the usual way. By this means judgment may be used in the removal of the fruit,and care can be taken to avoid the breaking off of the fruit spurs.

Fruit trees should not be allowed to bear so heavily that they require propping. If allowed to grow more than the branches can sustain it is more or less of a drain on the vitality of the tree, apart from the danger of the limbs being broken by the heavy weight of the crop. Propping, however, is much more common than judicious thinning, and where it is resorted to we know of no better plan than placing crutched poles underneath the branches to support the weight. I know of no special kind of supports being used other than this placing of poles underneath the branches, although I have seen light ropes or wire used in large trees to tie up a drooping branch to strong limbs in the centre of the tree, but this method is not so satisfactory as supports from beneath, and where wire or rope is used the branches often break off at the point of support.

Cultivating the Spy Orchard

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

In raising Spys is it best to cultivate the orchard and sow cover crops, or to let the orchard be in sod and use barnyard manure ? The soil is a sandy loam.—(A. J. L.

Cultivating an orchard of Northern Spys or leaving it in sod will depend very much on the character of the soil and the amount of moisture. Trees growing in good soil where they never suffer from drought, even if the soil is left uncultivated, will usually produce fine fruit, providing the fertility is kept up by the application of barnyard manure to the sod. If the soil is poor and there is any danger of drought it is much the best practice to cultivate the orchard and sow a cover crop in the month of July both for protection in winter and for improving the fertility of the land.

I believe the bandaging of trees with burlap, if properly attended to throughout the season, will almost exterminate the moth.—(G. C. Caston, Craighurst, Ont.

HORTICULTURE IN MINNESOTAS

T. G. RAYNOR, ROSE HILL, ONT.

THE conditions under which apples are grown are quite different in Minnesota to what they are in Ontario. Through many ups and downs some of the old settlers have persevered until they have originated varieties that can be grown in this northwestern country. The old fruit growers learned from their many failures with eastern and southern grown fruit trees, that very few varieties were hardy enough to stand the Minnesota conditions.

Men like Charles Gideon, who originated the Wealthy and Gideon apples; Mr. Harris and Mr. Yahnke, who has a seedling which stands equal to our Spy and King in quality and which bears the name of its originator, are great benefactors to their race. There are now varieties which bridge over the season pretty well, in Duchess for summer, Wealthy for fall and early winter, and Northwestern Greening, Melinda and Yahnke for winter varieties.

There are a number of nurseries in the state which are extending their trade even across the line into our Canadian Northwest. The most satisfactory locations for an apple orchard here, as with us, are found to be northern or eastern slopes. However, in most parts of the state there is no choice of slope, and fruit growers are compelled to make these conditions by setting out wind break plantations around their farm buildings and planting their trees on the north side. These catch most of the snow and protect the trees more or less from sun scald and warm winds from the south.

Until recently the wind-breaks have been for the most part of willows, cotton woods and box alders. These break the winds very well in summer, but not so well in winter. In many cases they have been placed so close to the buildings that as Mr. Yahnke puts it, "they have the snow banks in their kitchens."

A Busy Day in the Berry Field.

Pickers at work in the strawberry plantation of Davidson & Co., Meyersburg, Ont., are here shown. Mr. Davidson has two acres of strawberries this season and says that Corsican, Cook and Brandywine are the most profitable varieties for that section. There is no difficulty getting pickers at one cent per box, as farmers come miles to pick and many are turned away.

The coming wind break is the evergreen, one which breaks the winds in the winter time. Many tried these but failed to get them to grow, because they did not know that the sap of an evergreen contains resin, and five minutes' exposure of the roots to sun or wind means dead evergreens. Then many farmers didn't know that in setting them a mud bath was necessary, and as soon as they were planted the roots should be covered.

As Ontario is already over cleared in the older parts more of our farmers should pay attention to the value of evergreen wind breaks about their farm buildings.

No money can be made by holding grapes. When the season for grapes is past, the demand is over.—(Robert Thompson, St. Catharines.

A Rack for Hauling Apples

JOSEPH TWEEDLE, FRUITLAND, ONT.

I HAVE a very convenient rack for hauling apples. It has a set of low steel wheels with wide tires. These can be made to order and to fit any wagon. On this is a set of double bolster springs, which support a lorry platform. The platform can be built of two bed pieces, any width and length a person may desire. The wheels cost $15 to $20, while three ton springs cost about $15. The bed of the rack can be made for about $10. My rack carries 24 barrels of fruit, and if it were 14 inches longer could carry 28 barrels on end.

The way my wagon sits on the springs we can carry the barrels on end. This would not be possible were it not for the springs, as the fruit would be too severely shaken. Were it not for the springs, also, it would not be possible, for the same reason, to drive off the paths. It pays to have these springs, as they make it possible to trot the teams without injury to the fruit.

Objects to the Size

D. YOUNG, ADOLPHUSTOWN, ONT.

THE new apple box adopted by the Dominion Department of Agriculuture will be sold as a bushel and should be 10 x 11 x 19⅝ inches. Between the bushel box and the size of the one adopted there is a loss to the producer of about 350 boxes in the quantity I ship from my own orchard in one season—over 5,000 barrels. This is too much loss. It is not much on one box, but in the aggregate it is heavy. Another objection to the use of such a box is that it is too heavy to handle with cheap help.

The next annual meeting of the British Columbia Fruit Growers' Association will be held at Vancouver. The quarterly meeting in April was at Victoria, in July will be at Nelson, and in October at a place to be selected by the executive committee.

Rapid Spraying

ALEX. GLOVER, WINONA, ONT.

THERE is a statement in the May issue of The Canadian Horticulturist in the article giving Mr. Murray Pettit's and Mr. E. M. Smith's experience with their new spraying outfits, in which I am interested. In it mention is made by Mr. Murray Pettit, of Winona, of ten dollars having been offered an agent for another machine if he would cancel an order for one of his outfits. I believe this statement originated with me. At the time I made it I had been misled in regard to some points of the machine I had ordered, and thought that the Spramotor cart afforded an opportunity to overcome the difficulty. I believe I even went so far as to offer to pay for the Wallace machine I had ordered and to store it, unused, until the agent had an opportunity to re-sell it. After giving both machines due consideration, however, I became satisfied I had better keep the Wallace Power Sprayer which I had ordered. Since I have given it a trial I am perfectly satisfied with the way it works. After using it only long enough to get slightly acquainted with the handling of it we sprayed over 1000 pear, plum and peach trees, of an average age of nine years, on one side in half a day, and did it with only one line of hose, having a four-nozzle head. The point in regard to which I have been misled was in the matter of draft, as I had been told that my team could not handle my machine. I have found that my team can handle it easily, although one of them is a four-year-old colt weighing only 1,080 pounds. I make this explanation because the item in question might injure the Wallace Company and Mr. W. H. Brand, their agent here, as well as other fruit growers who might be misled as I was. I wish it to be distinctly understood that I am perfectly satisfied with my Wallace machine, and would not exchange it for any other.

SOME VALUABLE BULLETINS

EXPERIMENTS in dust spraying have been tried at a number of places in the United States, including the Delaware College Agricultural Experiment Station, from which a bulletin giving the results has just reached The Horticulturist. Two pounds of dry mixture will answer on trees which would require three to four gallons of liquid. Each tree received at each spraying one-half as much copper sulphate and one and one-half times as much poison as are contained in four gallons of Bordeaux mixture with poison. The conclusions arrived at from the experiments are as follows:

The codling moth and apple scab on Nero, July and Red Astrachan apples, were satisfactorily controlled by dust spraying, using Paris green for poison, in 1904. If the dust spray will produce the same results on other varieties of apples it can certainly be recommended. In liquid spraying operations for large orchards a mixing house and storage tanks are necessary, as is also a supply wagon if the spraying outfit is worked to its fullest capacity. This involves a heavy expense most of which would not be necessary in dust spraying. Should the dusting method continue to give the favorable results it has given in its first trial it must soon replace in part the liquid method, except where such sucking insects as San Jose scale must be fought during the growing season.

At present it is probably best to rely on some brand of hydrated lime now on the market and pulverized copper sulphate and Paris green for the dusting material, unless a pulverizing mill is available. In this case, and especially if dry slaked lime is used, the materials should be mixed and run through the mill. The formula now suggested is one pound of pulverized copper sulphate, one pound Paris green or green arsenoid, one pound ground sulphur and 50 pounds limoid, or other hydrated lime. It will perhaps be well to mix the copper sulphate and lime together a day or two before needed for spraying so as to facilitate chemical action between the two. Further testing may prove that a formula with a larger proportion of lime will prove effective, but at present the stronger one will be used.

As to cost, according to the bulletin, the dry spray can be applied on a commercial scale at half the expense of liquid spray.

WINTER KILLING OF PEACH TREES.

Another bulletin recently issued by the Ohio station gives a report of investigations in the Lake Erie fruit belt on the winter killing of peach trees in 1903 and 1904. The conclusions arrived at are as follows:

General cause of unusual susceptibility to cold of the orchards of the Lake Erie fruit belt: prevailing low vitality of the trees.

Specific causes of low vitality of the trees: San Jose scale, leaf curl, lack of nourishing plant food, imperfect drainage.

Exceptional causes of susceptibility to cold in rare cases of apparently healthy, vigorous trees: low, moist, rich black soil which favored an extreme growth of soft, poorly ripened or matured wood; or high culture upon soil rich in plant food which brought about similar results.

The unusually deep, hard freezing of the earth's crust was due, directly, to the continued steady cold, but was intensified, in many instances, by a lack of humus or vegetable matter in the soil, which constitutes nature's insulation of the surface of the earth from cold and heat.

Providing that the orchards had been kept free from fungous diseases and the San Jose scale, by timely and thorough spraying, no injury of trees was found where stable or barnyard manure had been used upon the ground within the last year or two previous to the winter of 1903-4; rarely was an injured tree found standing in sod; no injury was done where the surface of the soil beneath the trees, had been covered with

even a very light mulch; little injury was done where the trees stood in fairly well drained soil containing a moderate amount of fertility and humus; no injury was found where the trees were under the grass mulch method of culture; no injury was observed in any case where the stems of the trees had been slightly banked or mounded with a few shovelfuls or forkfuls of soil, peat or manure.

Very few trees which, within the past few years, had been affected with leaf curl or infested with San Jose scale or borers, remained alive or uninjured; and very few trees existing upon infertile or exhausted soil, depleted of humus, escaped uninjured.

Other bulletins received by The Horticulturist are: one on the maintenance of fertility by the use of lime, from the Ohio experiment station at Wooster; and The Preparation and Use of Sprays, and Disease-Resistant Potatoes, from the Vermont station at Burlington. They contain useful information and are worth writing for.

SELF-STERILITY IN FRUITS*

THEO ROSS, B. A., P. E. I.

FOR some reason which we do not understand many varieties of fruit are self-sterile. The pollen of that variety will not fertilize the pistils of the same variety, as for instance the Northern Spy. The pollen of a flower of a Northern Spy tree may fall on the pistil of a flower of a Northern Spy but fertilization does not take place. We say the Northern Spy is a self-sterile variety, and then we are in the dark groping blindly. This subject of self-sterility has not yet been worked out and it will not be for a long time to come, for self-sterility is influenced by climate and location to quite a degree.

There are some varieties of nearly all kinds of fruits self-sterile, and by a self-sterile variety is meant a variety that is unable to set fruit when alone; in order to be productive it must be set near some other variety. Planting near them more trees of the same variety does not make them fruitful, but if trees of another variety are planted near them they are often made fruitful. Then there are all the gradations from self-sterility to self-fertility. Some varieties will set fruit with their own pollen, but the result will not be nearly as good as if fertilized by pollen from another variety, while again with other varieties it will be just as good.

In some work done at Cornell, Stark pistils were fertilized with Wagner pollen and others with Stark pollen with these results, so with Longfield Greening. In these instances the size was much increased by cross-pollination, but it might have been still further increased if some other variety had been used as a fertilizer. In the case of the Talman Sweet there has been very little improvement, but there again if some other pollinizer had been used we might have had different results. The number of crosses that might be made are very large and in most of our orchards, where there are a great number of varieties, the number made every year is undoubtedly larger but we cannot check up the results.

Experimenting with various pollinizers is not only pleasant work but it requires really no outlay, and much good might result. All that is necessary is a few paper bags and some twine and a pair of scissors. Cut the stamens from some blossoms as soon as they open and fasten paper bags over them to prevent pollination. Then, when the pistil is ready, dust some pollen taken from some stamens that have been protected

* Extract from an address delivered at the annual convention of the Prince Edward Island Fruit Growers' Association.

in the same way and cover again with paper bags. In this way results can be noted but not in any other way. Even if there should be only one variety in an orchard the pollen might come a long way in the wind or bees might carry it. It is only when every precaution is taken that one can be sure. Even if this work has not been carried on very extensively cross-pollination of varieties is no longer a theory. It is an established orchard practice.

Among the common varieties of apples more or less self-sterile are Gravenstein, King, Northern Spy, Red Astrachan, Russet, Winesap.

Mostly self-fertile: Baldwins, Ben Davis, Fallawater, Greening, Duchess.

Most of our common plums are self-fertile, such as Burbank, Bradshaw, Green Gage, Lombards, Damsons, etc. Strawberries very often lack stamens altogether, as the Anna Kennedy, Arrow, Avery, etc. while others like the Crescent have so few and so poor stamens that they are practically self-sterile.

These observations ought to be of some practical worth in the setting out of an orchard. Some varieties of fruit will not bear at all unless they are planted near other varieties, while nearly every variety is benefited by cross-pollination. Do not then set out a large block of any one variety, but mix them, setting varieties that bloom simultaneously side by side, and try to find out which varieties cross best. If we have large blocks of one variety it might be advisable to put on each tree some grafts of other varieties to act as pollinizers.

Canning Fruit*

MRS. M. M'KERLIE, BURLINGTON, ONT.

IN canning fruit the first thing is to select good fruit, which is always more satisfactory if not too ripe. Next select good air tight jars. I have always found it the best plan, and one which causes the least work in canning time, to wash, scald and air jars, then replace the same tops as soon as the fruit is out. They are then ready for fruit after a single rinsing with hot water. It is always a safe and a wise plan to use new rubbers each year.

The following recipe for syrup is one which I have used and can recommend. To every three pounds of sugar allow one quart of water and boil half an hour. Then draw kettle to back of the stove, where mixture will not boil. Let it remain until you have jars filled with fruit. If berries or small fruits be careful not to crown so as to crush, but large fruit jars can be filled closely.

After jars are filled with fruit stand on a wet cloth and fill with hot syrup, then seal tightly, being very careful to exclude all air from the fruit before sealing. Set the jars in a tub in which a sack has been placed and pour in boiling water enough to fill the tub almost to the top of the jars, taking care to pour the water around the edges of tub, not on the jars. Then cover the tub with a cover of boards tightly and place heavy rugs over all. Let stand over night. A dry cool place away from the light should be selected to store the fruit away.

* Extract from a paper read at a Women's Institute meeting.

A Suggestion.—Let a number of orchardists agree to keep correct accounts of the number of full grown trees of each variety in their orchard and the age of the trees, the number of barrels of fruit of each variety sold, the grade, where marketed and the net price obtained, with date or season of sale, and report annually for say five years. If to these reports the system of cultivation, spraying, etc., is appended, the information to the intending planter and the general orchardist will be of the utmost importance and value.—(R. W. Starr before Nova Scotia Fruit Growers' Association.

Summer Pruning

"I HAVE sprayed my currants for the currant worm," said Mr. A. W. Peart, of Burlington, to a representative of The Canadian Horticulturist, who visited his place recently, "and am practicing thorough cultivation, which should be kept up until the fruit is almost ripe. This cultivation must cease when the fruit shakes off readily. Blackberries also must be well cultivated throughout the season.

"About the middle of July I shall do the summer pruning. Young canes are cut off so as to leave them three or four feet high, depending on the habit of growth and the sturdiness of the cane. This pruning makes the cane tree-like and strong to resist winds and storms. None of the laterals will be cut back until next March.

SUMMER PRUNING OF GRAPES.

"When pruning grapes in summer the clusters of the fruit must not be exposed too much to the sun, as that delays ripening. About the middle of July or perhaps later the ends of long shoots should be removed to throw the strength from the wood to the fruit, but there is an ideal medium which should be struck.

"As soon as the young grapes have set I intend to start spraying with Bordeaux mixture to try to prevent the rot which gives grape growers so much trouble. It is practically impossible to control rots, moulds and scab if the weather is damp and warm. However, I am going to give three or more applications of the Bordeaux."

The Strawberry Patch

"THE Williams strawberry," said Mr. Wm. Fisher, of Freeman, to The Horticulturist recently, "has been giving me the best returns each year. I usually have seven or eight acres in this crop and have set out Williams, Sample and Senator Dunlap this season. Strawberries should be set out as early in May as weather will permit. They should be thoroughly cultivated every week through the early part of the season. The hoe, too, should be used frequently to keep all weeds out of the rows. The blossoms should be clipped off the first season so that good strong plants may develop.

Mr. Sherrington's Berry Field.

This illustration represents the raspberry patch of Mr. A. E. Sherrington, who conducts the fruit experimental station at Walkerton. The principal variety grown is the Cuthbert. Mr. Sherrington considers it the best for his section for home or market. The berry bushes are used as fillers in his experimental apple orchard. The old apple orchard appears in the background.

"In my young orchard I always plant small fruit if the soil is suitable. This practice can be carried on until the fruit trees come into bearing. In raspberries I find the Marlboro and the Cuthbert give excellent satisfaction. The former comes in slightly earlier. They are both large berries of good quality suitable for shipping. The bushes, too, have sufficient wood to bear large quantities of fruit."

Methods With Raspberries

"THERE are two radically different methods of growing raspberries," said Mr. R. B. Whyte, of Ottawa, to The Horticulturist. "The one commonly used in western Ontario is to 'pinch in' the plant when it is about two feet high and make a bushy plant of it. In this way staking is not necessary. In the colder parts, like Ottawa and vicinity, where the plants have to be laid down during the winter for protection, I find it much better to allow them to grow without pinching them until they are about five feet high.

"Lateral branches should be cut off to within about six inches of the main cane so as to throw additional strength into the main cane and to prevent the lateral branches breaking off with the weight of the fruit. The bushes can be staked off. For a tall open bush like this it is possible to obtain larger and finer fruit, which possesses much finer flavor. I used to lose my crops when I tried the other method, but have never lost a crop since I have adopted this system."

It pays to correctly fertilize strawberries for the following reasons: It vastly increases the yield, it gives larger berries of better color and flavor and a firmer fruit. Firmness in the fruit enables it to be shipped long distances and arrive fresh.

Take pains. If you do that you will make a success of strawberry culture.

A Fine Fruit Exhibit

LINUS WOOLVERTON, GRIMSBY, ONT., SUPT. FRUIT EXPERIMENT STATIONS.

OUR Ontario fruit experiment stations will put up an exhibit at the Ontario Horticultural Exhibition in Toronto next November which will be of the greatest interest to fruit growers because of its educational character. For nine years these stations have been testing all known varieties of fruits. We have found many much lauded varieties to be worthless. These will be shown in a class by themselves, while the varieties which have proved profitable or otherwise worthy of cultivation will be shown and duly placarded. Work is already beginning in preparation by the putting up of tender fruits in glass bottles, of which several hundred have been distributed among the experimenters for the purpose.

The Effect of Example

GEO. VAIR, TORONTO.

DO not be discouraged by one failure to grow flowers, but try, try again. Your neighbor will seek to emulate you and thus spread this pleasing and refining influence.

On the street on which I live I did not have much opportunity to grow flowers, but I began to plant some creepers and added a few geraniums and other things in the small space at my disposal. The result was that my neighbors began to do likewise and have put me in the shade.

These neighbors began to take pleasure in gardening, and a more delightful scene could hardly be witnessed than that of a whole family, young and old, sitting outside in the summer evenings, often bragging about their different displays.

A perfect all round strawberry is about as hard to find as a perfect all round milk cow.

CORNER ROCKERIES IN CITIES

IN attempting to add true beauty to the landscape or even to the small lot the tendency in recent years has been to maintain as nearly as possible a strict naturalness. There are, however, very many cases in which art and nature must be combined to give the desirable effect.

Large boulders and ledges are in themselves natural objects which add a charm to their surroundings. Loose rocks and cobbles on the other hand are unsightly rubbish. But even these objectionable smaller stones may be made use of by having them form the nucleus for clumps of shrubs. It is the larger shaggy ledges, however, that give the best effect.

Large boulders arranged along a steep embankment with no regular outline add a naturalness and beauty which can be obtained in no other way.

By combining plants and rocks even small level lawns may be rendered much more beautiful. Too frequently a corner lot is spoiled by "busy" people taking short cuts and making a hideous path across what otherwise would be a beautiful lawn. Many means of preventing the making of these unsightly paths have been tried. Fences are being discarded. Shrubs and trees are effective, but as a rule rockeries add more beauty and are just as efficient in preventing inroads of hurried pedestrians.

Large, water-worn limestone rocks produce the best effect. They are so rough and irregular that they are almost certain to present a natural appearance. By combining what artistic tendency is possessed by even an amateur landscape gardener with the inherent naturalness of the rocks themselves it is an easy matter to produce a very pleasing effect.

In building the rockery none but the best soil should be used, and it is important that it be well packed into every corner between the rocks. The choice of shrubs, plants and vines will depend on the climate and on the site, as well as on the size of the rockery.

In Hamilton last year the City Improvement Society offered prizes for corner rockeries and many beautiful effects were produced. As an encouragement to amateurs in any line it might be stated that the first prize was won by Mr. C. D. Nash, who had had no previous experience in rockeries.

The First Prize Rockery in a Hamilton Rockery Competition.

"My rockery," writes Mr. Nash to The Horticulturist, "consists of water-worn stones of all shapes and sizes. In erecting them no particular care was taken to make them in any way straight. This, of course, gives a better effect. The rockery is 16 feet long, 26 inches high, and 28 inches

The Rockery That Won Third Prize.

wide. After putting a layer of broken stones in the bottom for drainage I filled the spaces even with the top with earth composed of old sod and manure which had been standing for over a year. This was packed down well and allowed to stand for a couple of months. Before planting the flowers I loosened the earth to a depth of about six inches. I planted geraniums, coleuses and dracenas. For trailers I used creeping ivy, nasturtiums and periwinkle, while small pockets were filled with alyssum and trailing lobelia. I also added some single petunias later in the season. In planting the varieties were intermixed as much as possible."

Dr. D. G. Storms, who won the third prize, informs The Horticulturist that his orders to the builder were: "Put the stones together so that no one will suspect any design." "I realize," says Dr. Storms, "that nature abhors straight lines. My rockery was built on no other plan than that of nature, except that it was extended from the corner of the house to the angle formed by the two sidewalks. In building it the soil for the formation was loosened and thoroughly enriched with well-rotted manure. The stones were placed without order except to leave pockets here and there. The soil used was a mixture of old clay sod, well rotted chip dirt and cow manure, with some leaf mould.

"I have endeavored to place in the rockery only those plants which are at home. I used hepatica, ferns and periwinkle. For bloom I depended on verbenas. My idea was not to make a flower bed, but simply an attractive and useful rockery."

Regarding the rockery of the Hamilton Cataract Power Co., which won fourth prize, Mr. Wm. A. Sweet says: "The rockery was made of mossy waterworn limestone rocks gathered from the side of the mountain. It is about 14 feet wide, 18 feet long, and three feet high, and runs from the corner of the building to the sidewalk. The space between the rocks was filled with equal parts of well mixed rotted manure, black loam and sand loam.

"Around the sides were planted some small rock ferns and wild flowers from the mountain, and nasturtiums. The top was well filled with various trailing and creeping plants, such as centrosema, cypress vine, portulaca and canary creeper. I also had some geraniums, fuchsias, cannas, asparagus and ivy geraniums. Some of these do not belong to rockery plants, but I put them in because it was too late in the season to get the more desirable kinds."

Ants on Peonies

DR. JAS. FLETCHER, OTTAWA, ONT.

My peonies last year were almost covered with ants and the plants in many cases were destroyed. I used everything I heard of but found no remedy. A friend told me that it was aphids and not ants which cause the trouble and that the ants ate the aphids. My roses too were attacked by some insect. The leaves curled up. I washed the roses once a day by spraying with cold water, and applied "slug shot," but it did no good. Is there a remedy?—(Mrs. Ezra Briggs, Walkerton, Ont.

Ants frequently cluster on the buds of peonies, but I have never observed any harm from their visits. They seem merely to eat the gummy secretion on the buds. I have never noticed aphids on peonies. For aphis on roses I think the easiest effectual remedy is to spray them with whale-oil soap, using one pound of soap in six gallons of warm water. Kerosene emulsion is made by dissolving one half pound of hard soap in one gallon of rain water by boiling. Then add two gallons of kerosene while still hot and churn briskly for five minutes. This should be diluted with nine times its measure of water when treating rose bushes attacked by plant lice.

With the 'Mums in July

GEO. HOLLIS, BRACONDALE, ONT.

THE early varieties of chrysanthemums planted in May must receive careful attention this month. The bench should be kept free from weeds and the surface of the soil loose to a depth of at least half an inch. If the soil is allowed to bake some parts of the bench will be too dry while others are too wet. Every endeavor should be made to get a vigorous and firm growth, for without that the flowers will not be good.

About the middle of July the addition of some manure water would be beneficial, but to some people the odor is objectionable. Arnott's horticultural manure has not this objectionable smell and gives first-class results.

The late varieties should be planted without delay. Both early and late kinds must be sprayed thoroughly and often, getting the water well under the foliage. If this is done the troublesome thrip will be prevented from working destruction. More plants are ruined by thrips than by any other insect. Thorough spraying with tobacco water once a week will keep the plants free from insect pests. If dwarf pot plants are wanted the cuttings should be rooted this month. Five or six plants can be put in a five-inch pot and with care they will make very nice plants. The strongest shoots of early varieties should be nipped back once more during July.

Chrysanthemums

"WHEN preparing the benches for chrysanthemums," says Mr. H. Neal, of Ingersoll, "I put two or three inches of well-rotted cow manure in the bottom and then about three inches of good soil on top of this. When the plants grow up and begin to show buds I pulverize a lot of cow manure and spread it all over the surface about an inch deep.

"This is better than using the liquid manure, because every time the plants are watered some food is made available to them. I aim to keep the plants growing steadily and never allow them to lop over. I prefer strings to stakes. My best paying varieties are Queen (white) and Col. Smith (pink) for mid-season, and Mrs. Germey Jones (cream) and Merry Christmas (white) for late season."

Some plants, as begonias, fuchsias, lilies, Chinese primroses and coleus, may be grown in an eastern window, in fact do better there than in too strong sunshine. Then there is the graceful palm and feathery fern for the room lighted by the northern window.—(Mrs. W. J. McLenahan, Appleby, Ont.

GROWING PANSIES

"WE grow a general stock of flowers," said Mr. P. Fogarty, Jr., of Fogarty & Sons, florists, Toronto, to a representative of The Horticulturist who visited their new greenhouse recently, "but we have made a specialty of pansies. We are going into carnation growing and have selected the Lawson (red), Glacier (white) and Morning Glory (pink) as the best varieties. At one time we used to give much attention to bedding plants, but since we have built a new greenhouse intend going into cut flowers and pot plants more extensively. Cyclamens and primulas make a nice display.

"Our pansies are grown from seed. The seed is planted in summer and produces strong, well grown plants before winter. They are covered in the autumn and in the spring they come on in good time. Last year we got new seed from an American seedsman to mix with our own so that we might obtain new varieties. Without such mixing the plants would soon deteriorate.

USES MANURE.

"The fertilizer that we use the most is stable manure," continued Mr. Fogarty, "but we have used commercial fertilizers also. The latter are good if they do not contain too much grease, which promotes fungous diseases. We have had very little trouble with insect pests. They can be kept down by regular fumigation. A ready sale is found for our plants in the local market, and more could be disposed of if we had them."

Dahlias Improved

E. F. COLLINS, TORONTO.

FOR many years the dahlia has been a favorite flower among the florists in England, and to-day it is found in almost every garden. The honor of improving this plant and producing new varieties with larger flowers belongs to the French and German gardeners. The glowing reports of grand displays brought back by the people of Great Britain who visited the continent caused the English gardeners to interest themselves in producing new varieties. That they succeeded is best evidenced by the fact that to-day they have hundreds of varieties of all shades and colors.

The introduction of the dahlia into England is ascribed to the Marchioness of Bute, who is reported to have brought the first specimen from Spain in 1798. At that time the dahlia was single. In a few years, however, some French enthusiasts had produced full double flowers in red, purple and pale yellow. By careful hybridization the striped and variegated varieties were produced from these until now we have what is known as the "Fancy Dahlia." The onward march toward perfection has been so marked that little more can be desired in the way of symmetry, doubleness or color.

The Lawson Carnation.—"There are four varieties of the Lawson carnation," said Mr. J. H. Dunlop to The Horticulturist recently, "the original Mrs. T. W. Lawson, the universally popular dark pink, and three sports, white, red, and variegated, each of which is similar to the original except their respective colors. The white is pure in color and large in size, the red a bright scarlet of a brighter shade than any commercial variety, and the variegated is delicately pencilled with cerise pink on a pure white ground, a very chaste flower."

Some plants like a southern exposure, the geranium for instance; others prefer the morning sun, some partial shade; others, as ferns, entire shade.—(Mrs. W. J. McLenahan, Appleby, Ont.

Large crops of strawberries are only grown on soils very rich naturally, or made so artificially.

THE CITY GARDEN*

A. H. EWING, WOODSTOCK, ONT.

NOT much can be done in the way of laying out city gardens, but there are ways of planting in order to get the greatest amount of beauty and interest out of them and there are trees and shrubs and plants that will give a greater amount of interest than many that are used. Every man is liable to have a hobby in the line of gardening, as in everything else, I suppose, and there seem to be fashions in gardening too, but I believe there is the greatest amount of satisfaction both for an amateur or professional gardener to be obtained out of the hardy herbaceous plants, bulbs and tubers.

A Beauty Spot in an Amateurs Garden in Perth

Another Walk in the Same Garden

The different species and varieties are in bloom from early spring to early winter ; amongst them there is an endless variety of form and color; they are of very easy cultivation, will grow in almost any soil and require comparatively little attention. Perhaps it would not be amiss to name a dozen out of the hundreds to be found in the catalogues: Delphinium (larkspur), phlox, iris (Fleur-de-lis or flags), helianthus (sun flower), aquilegia (columbine), campanula, digitalis (foxglove), hollyhocks, ornamental poppies, tritoma (red hot poker).

I do not mean to say that this class of plants should altogether take the place of many others in common use, such as geraniums, cannas, stocks, phlox drummondi, etc. We can hardly get along without them, but I think that the hardy herbaceous plants should be made the main feature.

I am very glad to see that the geometrical and formal styles of bedding and gardening are losing favor and that the tendency is more and more to the natural, which is certainly more beautiful and also more restful to the tired brain of the present day business man or workman. If you go in for roses they should have a garden for themselves,

* Extract from an address delivered before the Woodstock Horticultural Society. The Horticulturist will be pleased to receive copies of papers read at meeting of societies.

but the situation and the soil will determine to a great extent whether you will have much success or not. They should be sheltered from strong winds, but not under trees; they like plenty of air and sunshine, though shade from the hot mid-day summer sun will not be a disadvantage. As to soil, I have always found that a stiff loam suits them best, and if the soil in your garden is very light some heavy clay loam mixed with it would be very beneficial. Before ordering roses for your garden find out from your neighbors the kinds that thrive best in your locality, also what kinds do best on their own roots and grafted on other stocks.

Where the owner of a garden is unable to do much work on it himself, flowering shrubs are very attractive and much pleasure can be obtained from them. There is a great variety, and their blooming season begins early and lasts till well on in the summer. I should like to mention a few. Of lilacs there are a great variety of colors and shades, some make low bushes others large shrubs, some are early and others late; of the syringa (properly Philadelphus or mock orange) there are several varieties, short and tall; berberis or barberry; pyrus Japonica (Japan Quince), white and scarlet; deutzia; weigelia, several beautiful varieties, no garden should be without one of these; exochorda (pearl bush); althaea (Rose of Sharon), sometimes winter killed; the well known Hydrangea Paniculata Grandiflora; spireas in great variety and beauty; viburnum (snow-ball), and rosa rugosa very pretty both in flower and fruit. Some of these ought to be in every garden.

The Verandah Box

E. MEPSTED, OTTAWA, ONT.

ONE of the most attractive features of summer decoration is the verandah box. We are beginning to find them on all our streets. If there is no other plant decoration on the lot the verandah box is still complete, and if there are many other decorations around it a finish is added to all.

Some people cannot afford to spend much on these boxes. They need not. They can easily get a plain box made the required length with plenty of depth and width—don't make them too small. Place them on the verandah and plant with nasturtium and petunias, single, of course. Add two or three German ivys and you have a cheap box. If you wish you can add a few geraniums and by midsummer the display is fine.

The plants need plenty of water when they are growing vigorously. On the shaded side of the house begonias and foliage plants, such as coleus, are suitable.

Advertise in The Canadian Horticulturist.

Tree Peonies at Ottawa

AMONG the many amateur gardeners which Ottawa can boast of none are more enthusiastic than the Hon. Frank R. Latchford. His display of tree peonies is a very striking feature of the Waverly street garden. Many of these were imported direct by himself from France and Japan. These beautiful flowers are usually considered tender in climates less severe than that of Ottawa so that this magnificent display requires some explanation.

Mr. Latchford attributes his success to his manner of protecting them. He uses no packing material of any sort, but each plant is covered by a wind and water proof box made of ordinary boards. He is firmly of the opinion that packing material, even of the best, induces mildew and decay, and dryness and protection from the wind are the essential features. His success with peonies, as well as tender roses, is an indication of the correctness of his theory.

The Horticulturist is now the peer of the American monthlies and ought to do much for horticulture in Canada.—(P. G. Keyes, Ottawa,

Eriobotrya Japonica—Japan Medlar

R. CAMERON, NIAGARA FALLS, ONT.

ERIOBOTRYA Japonica, the Loquat, Japan "plum" or Japan Medlar, is one of the most valuable fruits of the southern states. Blossoming in winter, the fruit ripens in early spring and brings fancy

Japan Medlar

prices in any large city. It is frequently shipped to New York in strawberry boxes. This fruit has long been cultivated in the south, where it seldom attains a height of more than 15 feet, though in its wild state it forms a lofty tree.

The fruit is the size of a plum, bright yellow in color, and delicious taste. It is a most beautiful broad leaved evergreen, and is one of the finest ornamental plants to cultivate as a tub plant on the lawn, where it flowers and fruits during the summer. It is easily raised from seeds, and will winter well in any ordinary cellar.

It will grow readily from cuttings the same as the oleander, and makes a good mate for the latter. It does better if it gets a rest in the winter, and should be given very little water until the spring when it begins to grow. It may be kept in winter in a cool greenhouse, or in the cellar.

Floral Exhibitions

E. MEPSTED, OTTAWA.

ONE of the greatest incentives to amateur gardening is our horticultural society with its shows. It is natural for us to like to contest with others for supremacy, and in flowers and plants and vegetables it is particularly fascinating. But, when we enter these contests, we must learn to take defeat cheerfully. It is natural for us to think our own is the best, but few can look on their opponents' exhibits without prejudice. The judge as a rule will pick out the best. He has points of his own to go by, and although sometimes the decisions are close, and it seems as if he might have reversed his decision with equal justice, perhaps we did not notice our poor foliage, an old flower, or some short stems. When we see how close we were to the first or what an improved exhibit we have from last year we go home prepared to do better next year.

Starting Cucumbers

"CUCUMBERS started in hot beds dampened off badly," said Mr. H. R. Rowsome, of Burlington, to The Horticulturist, last month, "but there was practically no loss where they were started in the greenhouse. I start cucumbers in pots," continued Mr. Rowsome, "but plunge the pots so that less frequent watering is demanded. The plants should not be set out before June 1, because all frosts must be avoided. Cold winds are very harmful.

"My plants are set in rows, in furrows, four feet apart, and are three feet apart in the row. When started in pots and set out in the furrow they get no set back. If given frequent cultivation until the vines cover the ground a good crop of fruit is ensured."

In preparing soil for the hot bed see that the manure is well rotted or it will dry out. Rich leaf mould is the best soil.

PLANS FOR THE VEGETABLE GROWERS' CONVENTION

THE recently organized Ontario Vegetable Growers' Association is planning an energetic campaign for the summer and fall. In the near future the association is likely to be one of the strongest associations of the kind in the province.

A meeting of the executive committee was held in Toronto June 15, the officers present being Messrs. W. A. Emory, of Aldershot, president; Joseph Rush, of Humber Bay, vice-president; Geo. Syme, Jr., of Carlton West; W. Carter, of Dovercourt; John McKay, of Doncaster; R. Lankin, of Toronto; F. F. Reeves, of Humber Bay; A. MacMeans, of Brantford; John Atkin, of Sarnia; J. E. Terrill, of Picton, and the secretary, H. B. Cowan, of Toronto. It was explained by the secretary that the deputation which waited on the government in March and asked for a grant had met with a favorable reception, as the government had given the association a grant of $600. In addition to this the association was given a special grant of $200 to assist it in making an exhibit at the Ontario Horticultural Exhibition in Toronto next November.

After a little discussion it was decided to hold the first convention of the association on November 15 and 16 next at the time of the Ontario Horticultural Exhibition and to secure first-class men as speakers, not only from points in Ontario but from the United States as well. A rough outline of the program was prepared and the secretary was instructed to communicate with the parties mentioned to see if they would be willing to speak on the subjects assigned to them.

In the morning of the first day there will be a meeting of the officers of the association. In the afternoon the main subject for discussion will be "Growing Vegetables for Canning Purposes. Mr. W. C. McCalla, of St. Catharines, will be asked to speak on "The Cost of Production"; Mr. J. W. Hyatt, of West Lake, on "Cooperation in the Growing and Canning of Vegetables," and a representative of the Canadian Canners' Company on "The Canning of Vegetables from the Manufacturer's Standpoint."

At the Thursday morning session the main subject for discussion will be "Insect Pests in the Garden," when the speakers will include an authority from the United States; Mr. R. S. Brodie, of Montreal, and Prof. W. Lochhead, of Guelph Agricultural College. In the afternoon the subject will be "Growing Vegetables for Market Purposes." Prof. Zavitz, of Guelph, will be invited to speak on "Experiments in Growing Vegetables"; Mr. Brodie, of Montreal, on "Growing Vegetables under Glass," and Mr. J. L. Hilborn, of Leamington, on "Growing Vegetables for the Early Market. It was decided to leave plenty of time for a discussion of the various subjects.

After a brief discussion the secretary was authorized to communicate with Mr. G. A. Putnam, Superintendent of Farmers' Institutes, to see if he will arrange for the holding of a series of meetings some time during the latter part of September or the early part of October in the vegetable growing districts of Ontario, these meetings to be addressed by well known authorities on vegetable growing who will be in a position to assist in the formation of vegetable growers associations in the same manner that local fruit growers associations were formed last spring.

It was felt that the association should be thoroughly organized before the convention next November, and it was decided to send the following members of the executive to the cities mentioned, during August, with the object of forming local vegetable growers' associations:

Mr. Joseph Rush, to Cobourg, Belleville, Kingston, Brockville, Cornwall, Ottawa and Peterboro.

Mr. W. Carter, to Barrie, Orillia, Owen Sound, Guelph, Berlin and Stratford.

Mr. A. McMeans to Woodstock, Simcoe, Ingersoll, Galt and London.

Mr. F. F. Reeves to Niagara Falls, St. Catharines and Hamilton.

Mr. John Atkin to Chatham, St. Thomas, Windsor and Leamington.

The president of the Guelph Agricultural College will be requested to arrange for an exhibit of pressed weeds at the Ontario Horticultural Exhibition, the weeds to be properly named and accompanied by information regarding methods for their extermination.

Three hundred dollars was voted to the Ontario Horticultural Exhibition as the association's share of the expenses. Messrs. Rush, Syme and Reeves were appointed a committee to prepare a prize list. A second committee, composed of Messrs. Emory, Rush, Syme and Reeves was appointed to represent the association on the executive of the Ontario Horticultural Exhibition.

BURGUNDY MIXTURE—SODA BORDEAUX

W. T. MACOUN, C. E. F., OTTAWA.

THE use of washing soda instead of lime in the preparation of a mixture for potato rot has been advocated in Great Britain and Ireland for about five years, and the Burgundy mixture, as it is called, has been used very largely there for this purpose in preference to ordinary Bordeaux mixture. When freshly prepared its adhesive properties are greater than ordinary Bordeaux; it is not so liable to clog the sprayer; washing soda is more uniform in character than lime; it undergoes no change in composition when kept; in Canada, also, it is sometimes difficult for farmers to get fresh lime. It has been used very little in this country as yet.

A formula for the Burgundy mixture was published in my report for 1902. It has been tested at the Central Experimental farm, but the results so far both with fruit and potatoes have not been definite enough to determine its comparative value with Bordeaux mixture. We know of only one fruit grower in Ontario who has been using the Burgundy mixture for spraying apple trees for the prevention of apple rot, namely, Dr. Harkness, of Irena, and he has had excellent results, his McIntosh red apples being spotless. It has an advantage in that it does not discolor the fruit as much as the ordinary Bordeaux. Apparently its chief defect is in the fact that it loses its adhesive properties very rapidly after it has been made a few hours, and hence should be applied when it is fresh, when it will adhere better than Bordeaux.

The following results, taken from Leaflet 14 of the Department of Agriculture for Ireland, show that in the year 1900 the results from the use of Burgundy were better than those from Bordeaux. In 1901 and 1902 the yields were also greater.

RESULTS OF TRIALS, SHOWING YIELDS PER STATUTE ACRE, 1900, IN IRELAND.

	Name of Potato.					
	Dufferin.		Sutton's Flour Ball.		Beauty of Bute.	
	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.
Sprayed with Sulphate of Copper and Lime..	10	14	10	10	10	3
Sprayed with Sulphate of Copper and Washing Soda.....	12	0	11	11	11	13
Not sprayed.....	7	3	8	5	7	19

The following formula for the preparation of Burgundy mixture appears in the spraying calendar which was issued by Dr. Fletcher and the writer last spring:

BURGUNDY MIXTURE (SODA BORDEAUX) FOR POTATO BLIGHT AND ROT.

Copper sulphate (bluestone), 6 pounds.

Washing soda (carbonate of soda), 7½ pounds.

Water (1 barrel) 40 gallons.

Dissolve copper sulphate as for Bordeaux mixture. Dissolve 7½ pounds washing soda in four gallons water. Pour the copper sulphate solution into a barrel, half fill the barrel with water, then stir in the solution of washing soda slowly, stirring continuously, and finally fill the barrel with water. It is now ready for use. The soda Bordeaux adheres better to the foliage when freshly made than the ordinary Bordeaux mixture, but it deteriorates rapidly in this respect and must be used as soon as made. If left standing for 24 hours it will have lost nearly all of its adhesiveness.

The soda Bordeaux is not recommended in preference to the ordinary Bordeaux mixture, but where lime cannot be obtained it may be used with good results. Furthermore, on account of its freedom from gritty matter, there is less likelihood of the nozzles becoming clogged when it is used. As washing soda is considerably more expensive than lime this mixture costs more than the ordinary Bordeaux mixture. For fruit trees use four pounds copper sulphate and five pounds washing soda.

Vegetable Pests

"THE most effective preventive of mildew on lettuce is to grow it rapidly," said Mr. J. W. Rush of Humber Bay, to a representative of The Horticulturist. "Sulphur is liable to kill the plants.

"I have had considerable trouble with the maggot on my cabbage and onions. The best method is to pinch them between the finger and thumb. I have grown cabbage on the same ground for 28 years, and had club root only the last two years. I have moved the crop to other ground to try and get rid of it.

"Two to four acres of melons were grown at one time, but now I have only a few hills, as melons can be brought here from outside points more cheaply than they can be grown."

Vegetables Under Cotton

"I do not believe the growing of vegetables under cotton frames will ever be a success commercially," said Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa, to a representative of The Horticulturist recently, who visited the farm, "but it may prove a success for amateurs who would like to keep a garden in the city and are unable to do so through the destruction worked by cats, dogs and chickens.

"The frame we have at the farm cost $15. It is 62 x 15 feet and the wood will last for years. The cotton lasts two years and costs about $5 a year. This year we are growing cauliflower, radishes and beans. The idea of using the frames in growing these vegetables is to keep out the root maggot from the cauliflower and the radishes and to get the beans earlier in the season and have them more tender.

"Cauliflower, radishes, beans and lettuce have done the best. Early cauliflowers are usually a total failure outside the frame, but I have not found them so in the frame, except were the root maggot having got into the hot bed, comes out on the roots. Radishes also have been frequently a total failure when grown outside, but have succeeded in the frame. The warm sandy soil around Ottawa is suited to the maggot."

A Big Crop of Celery.—"I expect to grow about 50,000 celery plants this season," said Mr. H. R. Rowsome to The Horticulturist a couple of weeks ago. "Paris Golden and Evans' Triumph are two good standard varieties, but Bruce's Hamilton Red also give large returns. Swamp muck and black sand are best adapted to the growing of celery, while it will not grow on land with a clay subsoil."

Tomato Growing

"I HAVE set out about nine acres of tomatoes," said Mr. Arthur Peer, of Freeman, to a representative of The Horticulturist who visited his place last month, "and none of the vines have been destroyed by frost. On our soil, which is a clay loam, we get medium vines and good fruit, and I find that rows five feet apart and four feet apart in the row give the best returns."

"For an early crop," continued Mr. Peer, "the Earliana is exclusively grown, while Stone, Matchless and Favorite are good for a later crop. The Stone is perhaps best if the season is long. I grow chiefly for the canning factory, but ship some of the early varieties to Toronto and Montreal.

"Many of the growers in this district belong to the Hamilton Tomato Growers' Association. I had my crop contracted for before the agitation for a higher price was begun, but believe that growers should have 30 cents per bushel for their crop.

"In an unfavorable season, when the crop is not good, 25 cents per bushel does not pay the expenses connected with growing them. If the canners combine would give 30 cents the private factories would do the same."

A Frame for Tomatoes

A HANDY method of tying up tomato vines is practised by Mr. R. B. Whyte, the well known amateur fruit grower in Ottawa. "For my tomato vines," said Mr. Whyte to The Horticulturist, "I make a frame three feet wide by four and a half feet high and tie the vines to the frame. Stakes two and a half inches wide and two inches thick are used for uprights, and laths for cross pieces. The stakes are pointed and driven into the ground.

"One of the best features of these frames is that they can be removed in the fall and stored and used again whenever desired. The benefit of this system is that it lets the sun reach the vines, thus ripening the fruit earlier and also preventing destruction by rot."

"The crown gall is a bad pest which is new in our nurseries," said Mr. A. N. Brown, of Delaware, when talking to a Horticulturist representative. "We cannot discover its cause or how it can be successfully fought. It is very destructive. Fumigation and other remedies which have been tried are no use."

The Beautiful Effect of a Clump of Spiræa Van Houttii.

A clump of Spiræa Van Houttii, one of the most charming shrubs of the Spiræa family, is here shown as reproduced from a photograph furnished The Horticulturist by Mr. Roderick Cameron, of Niagara Falls South. It is rather dwarf in habit, and the flowers are of short duration, but when in full bloom its massive white flowers present a very pleasing appearance. Its foliage, too, is beoutiful. It is hardy only in the warmer parts of Ontario.

Borers Injuring Trees

PROF. H. L. HUTT, ONT. AGRI. COLLEGE,

I have been planting trees and find occasionally that insects and dry rot get under the bark, and sometimes have almost girdled the tree, so that when I cut away the decayed part round to the good bark it left a great patch of wood bare. I have covered this with soft bees-wax, as the only thing I could think of.—(R. Holmes, Toronto, Ont.

I am inclined to believe that the trouble with your newly transplanted trees is caused by borers. There are several kinds of these, the two most common being the flat headed and the round headed borers. The eggs from which these hatch are usually laid in the southwest side of the tree near the ground, and as soon as they hatch the young larvae eat through the bark and feed just beneath the bark for one or two seasons, sometimes entirely girdling the tree. When fully mature they bore deeply into the wood and pass the pupa or resting state, from which they emerge in the perfect form as beetles.

Where one has only a few trees to protect, a good plan is to encase the lower portion of the trunk of the tree with fine wire netting, which prevents the beetles depositing their eggs. Another plan used in orchards where there are many trees to be protected, is to wash the trunks of the trees with soft soap, to which a sufficient quantity of crude carbolic acid has been added to give it a strong smell and make it repulsive to beetles. This should be applied the latter part of May or in early June, at intervals of two weeks, at which time the beetles are depositing their eggs. This, of course, is a preventive measure.

If the borers have already gained entrance to the tree, the only plan is to cut them out wherever dead bark indicates their presence, and it is well to cover the injured part with a coating of heavy lead paint. It is not wise to use tar or any black substance of that nature about the trunk of the tree, as it absorbs so much heat as sometimes to seriously injure the tree.

One Method of Growing Celery

"PARIS Golden," said Mr. Geo. Benner, of Burlington, to The Horticulturist in a recent interview, "is the celery commonly grown in this section. I start early celery in the greenhouse about February 15 and transplant it into flats. About May 15 or May 20 the plants are set out and the crop is ready for use about July 12.

"I get a better crop from rows than from solid beds. I use level culture and get just as good a crop with less labor than is necessary when planting is done in trenches. Then I blanch with boards instead of with dirt. There is no trench to dig, and no piling of dirt around the plant and pulling it away again. With a 10-inch board on each side, wire hooks to hold them together and some dirt along the bottoms to keep out the light the blanching is done in about 10 days.

"Compost is the best fertilizer for celery. I put it on in the fall and then do not need to plow in the spring. The ground must be cultivated frequently and not allowed to get solid."

Bees in the Orchard

"In fruit plantations," according to Mr. H. R. Rowsome, of Burlington, "bees do not have very much to do with fertilization. Cold, long continued rains wash the pollen out, thus preventing fertilization.

"If cold wet weather comes after the fruit has set a great percentage of the fruit often falls. This is especially noticeable with cherries. The stems rot off about the middle, letting the fruit drop. With currants, stems and all fall. In some seasons as high as 50 per cent. of the crop is lost from this cause."

If mushrooms were sufficiently brought before the public in a city like Toronto they should find a ready sale.—(Percy Casborn, Deseronto, Ont.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

A GOOD START MADE.

The recently formed Ontario Vegetable Growers' Association promises to be of great value to the vegetable growers of the province. The wonder is that such an association was not formed long ago and that there are not more similar organizations in the other provinces of Canada and in the states of the Union. The steps the association has taken to increase its membership and strength by forming local associations throughout the province give us reason to believe that it will ultimately become one of the most representative bodies of the kind in Ontario.

The idea that once prevailed that any person could grow vegetables is fast disappearing. As in fruit growing the increasing number of insect and other pests is fast driving the lazy and ignorant vegetable grower out of business. It is becoming recognized that if vegetables are to be grown successfully the most improved methods of culture must be practised. In making these methods known the Ontario Vegetable Growers' Association should play a prominent and valuable part.

A LARGE SHOW PROMISED.

There are a number of reasons to believe that the second Provincial, Fruit, Flower, Vegetable and Honey Show, or the Ontario Horticultural Exhibition, as it is now proposed to call it, will be a much greater success this year than last. The fact that Massey Hall has been secured for the purposes of the exhibition, for the second full week in November, will make it possible to display the exhibits to much better advantage and should add materially to the attendance. The inclusion of a vegetable exhibit and the holding of an additional convention will also tend to increase the interest in the show.

Last year the management was handicapped by unsuitable buildings, lack of experience in the holding of a joint exhibition and by ignorance on the part of the public in regard to the real nature of the show. The success achieved under these circumstances was encouraging and is bearing fruit this year, as firms and people who refused their assistance last fall are already showing an interest in this year's exhibition. These exhibitions promise to become an annual event of great importance.

The Horticulturist frequently receives letters from its readers, when renewing their subscriptions, stating that they have taken this magazine regularly ever since it was first established twenty-seven years ago. This speaks well for The Horticulturist and indicates the important part it has played in the horticultural affairs of the country for over a quarter of a century. We would greatly like to introduce some of these old subscribers to our thousands of new readers, and if they will be kind enough to send us their photographs it will be a pleasure to publish them. Let us hear from you, our old standbys.

Fruit growers are waiting patiently to hear Hon. Sydney Fisher's verdict in regard to the Dominion fruit conference he has been asked to call. Beyond informing the delegation that waited on him that he was favorably disposed to the idea nothing has been heard from him since. It is about time arrangements for the convention were being made, and fruit growers would like to know what the plans of the Dominion Department of Agriculture are.

Will not our readers help us increase our circulation until it reaches the 8,000 mark? If each of our readers were to induce only one of their friends to subscribe, even if only for the balance of the year, they would be doing their part nobly and the mark aimed at would be much more than passed. Our readers can be of great assistance in this way if they will try and can also help by buying from our advertisers. A little help from each means a great deal of help from all.

The main prize of five dollars, offered in each issue of The Horticulturist to the readers who purchase goods to the greatest value from advertisers in that issue, was won recently by Mr.

E. M. Smith, of Winona, who purchased goods to the amount of $726.95 from the Spramotor Company, of London, Ont. The Spramotor Company has informed The Horticulturist that Mr. Smith, when ordering these goods, notified them that he saw their advertisement in The Horticulturist. How is this for proof of the value of The Horticulturist as an advertising medium ?

Even the war and other troubles of Russia did not prevent Eurene Joseph Roebuck, 47 Pokroosky street, City of Rostaff on the Don, Russia, from renewing his subscription in January to The Horticulturist. Truly the circle of influence of this magazine is a wide one.

How to Pack Early Apples

(Continued from page 248.)

The St. Lawrence, last year, was particularly fine in Quebec, but a great many of them were handled at a loss, simply because shippers did not know the best place to market them. Never ship St. Lawrence to the Old Country markets, as for some reason British buyers do not want them and they always realize a poor price. One reason for this is they are often allowed to become overripe before packing and land in poor condition. Another reason is that the people over there seem to want an apple to please the eye rather than to tickle the palate; else why should they prefer the Alexander to the St. Lawrence, or the Ben Davis to the Spy.

The best and in fact the only market for the St. Lawrence is Winnipeg and the west. Western buyers will handle all we can send them. One of the buyers in our district shipped a car of St. Lawrence to Liverpool, at the same time shipping one to Winnipeg. The stock was equally good in each, and was put up by the same gang of packers. While the one shipped to Winnipeg realized $2.25 net, the one sent to Liverpool only netted 55 cents.

For the Winnipeg market the barrel is the best package, although if the No. 1 were put up in boxes the returns should justify the extra trouble. Pick your St. Lawrence as soon as well colored; do not allow them to become too ripe ; grade them carefully, and keep out the culls.

The best paying apple in the province of Quebec is the Fameuse. Although it is not really an early variety, I think you will agree with me that the Fameuse is the best apple we can raise in this province when properly handled. There is no apple raised on the continent in which there is so much money lost every year by poor handling. Being tender and easily bruised it shows rough treatment more than any other variety. This is another apple which I contend should always be packed in boxes when No. 1. You cannot pack them in barrels to ship any distance and have them tight when they arrive at their destination without practically ruining about one-third of the apples in the barrel. Few shippers would recognize their apples one week after packing if they were to see them. No apple looks as badly as a bruised barrel of Fameuse two weeks after packing.

The loss will be lessened considerably if the apples are properly packed, but how many of our farmers can we get to pack their Fameuse and have them tight without bruising them? I inspected two cars of Fameuse last fall just as they were going on board the steamer for Glasgow. One car had been packed by Mr. G. D. Edwards, of Covery Hill, the other by another shipper near Montreal. That packed by Mr. Edwards, notwithstanding the fact that they had been drawn ten miles over one of the roughest roads in our county, were practically all tight, without being overpressed. The other lot were 75 per cent slack, and 50 per cent badly so. I think the party shipping this lot failed to rack his barrels thoroughly.

Glasgow is the best foreign market for our Fameuse, but Winnipeg is the best market to ship to. They want our Fameuse there, and last year were unable to obtain all they wanted. About 20 cars were shipped there from Hemmingford, and the shippers made money on them. They always bring about one dollar a barrel more than Ontario Snows and I believe that from this out dealers will be able to handle all surplus stock.

Our local markets also take quantities of Fameuse at good prices. A great many growers make the mistake of selling their Fameuse before November 1. Look at the result last year. On November 1, Fameuse sold in Montreal for $1 to $1.25—later they were worth $3 to $4. It would have cost about 20 cents per barrel to have put the apples in cold storage. Look at the profit there would have been had this been done. Only put in No. 1 stock, as wind falls or scabby apples would be practically worthless at this season.

Three or four years ago we thought we had too many early apples. Our local markets were glutted with them every fall, they sold for ruinously low prices, and farmers became discouraged. Some of them even cut down their orchards. This is all changed. Since our western market has become such a good one for our early apples and exporters have found that they can be exported with profit there is no glut in our market.

If our growers would only attend to their orchards properly, cultivating, manuring, spraying and pruning them, the early apples I have mentioned, with the addition of one or two others, such as McIntosh Red and Milwaukee, would prove fully as profitable as those in Ontario. With all our experimenting we have failed to find a satisfactory winter apple for Quebec, and until we do let us stick to our early varieties.

One of the most important problems before the average small fruit grower is that of the introduction of the power sprayer for use either in a cooperative way or by parties who are prepared to undertake the work by contract. The large grower can afford one for his own use.—(Joseph Tweedle, Fruitland, Ont.

TRADE NOTES FOR PROFESSIONAL FLORISTS

The past month was a busy one for the professional florists in Canada's leading cities, as trade was brisk, the demand being steady and the prices realized profitable. Now that The Canadian Florist has given up the ghost The Canadian Horticulturist, being the only paper in Canada through which the professional florists may expect to be able to keep in touch with each other, has collected a few chatty letters for the trade.

Montreal Notes

The bedding trade is practically ended for this season. It has been the best season for some years for quantity sold and prices obtained. Most of the florists report being cleaned out. Geraniums were the leading plants, especially scarlet, A. Ricard being the favorite. S. A. Nutt was a good second, whilst La Favorite (white), Beautie de Pontevin (salmon) and J. Viaud (pink) all sold. Good plants in four-inch pots brought $1.50 per dozen without even a murmur. Petunias had the next best call, and deservedly so, either for hanging baskets, window boxes, or for bedding. Other staple varieties of bedding plants sold equally well. Although bedding plants are very remunerative we are all glad to see the last of them so as to give us a chance to clean out the houses. We are now busy planting roses, 'mums, etc. Trade has been brisk lately, weddings and funeral orders taking the lead. Roses and carnations are in steady supply, but the hot weather is injuring them slightly. Hardy flowers are coming in in quantity now. Valley is over, but while it lasted there was a great demand for it. Peonies are coming in in great quantities and of extra fine quality and sell on sight. A few of the new Japanese varieties exhibited before the Gardeners' and Florists' Club were superb.—(Geo. Robinson.

A Newsy Letter from London

The season when store trade is any considerable feature in the general business is past, wedding and funeral orders being the only ones that are being executed. In the greenhouses we are just between two rushes. The bedding plant trade is about finished, a few belated window boxes, vases and baskets are all that are called for. The coming rushes are rose and carnation, and chrysanthemum planting and getting general stocks ready for the fall trade.

The bedding season has been an extra brisk one, and all good plants—especially geraniums—have sold out. There are still quite a few on the market, but these are the second or third rate stock, being brought in by the small grower who grows or tries to grow everything in extremely limited space.

In London, in geraniums, S. A. Nutt is the reigning favorite, but in Guelph a local man told me recently that scarlets were the only sellers. We can dispose of quite a few good scarlets here, also a few pink and white, but 90 per cent. of the demand is for crimson. Coleus, Verchaffeltii, Golden Bedder and Chicago Bedder are all popular. Lots of people want the big leaved, coarse growing kinds, but it won't do to encourage this demand, as these varieties seldom or never stand the sun outside. A few cannas, say half a dozen different kinds, a couple of crimsons, a yellow, Madam Crozy, a spotted variety, and a good dark foliaged variety, are all the market demand. Caladium Esculentum, in limited quantities for damp situations, a few heliotrope, for lovers of the old fashioned flowers, a batch of alternanthera, cordyline and mesembryanthemum for an occasional formal bed, a big lot of vinca variegata for a trailing plant, and piles of the old German ivy for the same purpose will about cover the principal lines of the bedding trade here. To all this there is but one string, the same that is attached to every line in floriculture: the plants must all be of the very best quality. Buyers will willingly stick any old scrags they may have had in the house all winter into their beds and boxes and enthuse on the beautiful plants, but they invariably fail to become enthusiastic on anything but the very best when they visit a greenhouse, and if this is not present, womanlike, they have 40,000 excuses for not taking what you have got. If you have extra quality stuff they will take it even at double prices.

Insects and fungous diseases are troublesome as ever. An encyclopedia would be necessary to tell all the troubles they develop. Growers are rapidly getting the plants into the benches. The commercial varieties are looking well. The list of those grown for this purpose seems to be smaller than ever, notwithstanding the immense number of varieties introduced each year. Gammage & Sons will have eight houses devoted to chrysanthemums this year, seven to commercials and one to exhibition blooms. The big house devoted to the latter is in charge of Roy Winslow, the medalist of the Guelph Agricultural College, who has got his chemical laboratory in working order and promises us something extra. He certainly has got them moving—but more of this later.

What we want to hear a lot about through The Canadian Horticulturist is the coming Canadian Horticultural Association convention at Montreal. I hope, Mr. Editor, you will persuade all your readers possible to take in the old city during the meeting of that body. It is not by any means necessary to be a florist or a gardener to enjoy a couple of days with the craft in old Montreal in August. Any horticulturist will find there is plenty to interest him in his own line down there and lots to see besides Mount Royal. In conclusion I would say that it gives me much pleasure to send these few notes to The Canadian Horticulturist, and sincerely hope it will be successful in its efforts to secure the interest and patronage of the professional floriculturists of Canada.—(Fred. Bennett.

Toronto Trade Notes

"Trade has been brisk," reports Mr. H. G. Dillemuth, of J. H. Dunlop's retail establishment on King street. "So far it has been better than last year. American Beauty roses are still of fine quality and almost up to mid-winter

stock. The Victoria is coming in with three-foot stem and large heavily petalled flowers Madam Chataney has become a favorite pink rose. It holds its quality and color well and is likely to displace Bridesmaid to a considerable extent, especially in the warmer weather. The latter already shows smaller flowers and has suffered considerably from mildew.

"Peonies are now the staple flower. More attention is being paid to these each season. Poor varieties are being weeded out and better ones added. This year finds a greater acreage of them grown than ever. The first lot of outdoor sweet peas have arrived. Lilium is expected in a few days. There is still an abundance of Longiflorum and Aratum. As a result of the Governor-General's visit and the usual host of June weddings trade has been extra brisk during the past month."

TRADE BETTER THAN USUAL.

"Trade has been excellent and prices better than usual," reports Mr. T. Manton. "Geraniums have brought higher prices than in other years, and the stock is cleaned out. Most bedding stock sold well. Ordinary box stock is always cheap in Toronto. Recent arrivals of roses are good for this season of the year. Kaiserin August Victoria is an exceptionally popular white variety. Peonies are of good quality. Many buds form, but late frosts so injure them that they never open. The tender European varieties are most easily affected by frosts. The demand for these flowers is greater than ever. Carnations are cheap and also in great demand."

Ottawa Florists Sold Out

Spring business is over and it has been brisk. There has been a much greater demand for all lines than previously. The demand for veranda and window boxes has doubled, and the demand for hanging baskets was increased. Geraniums were wanted by every one, and in a majority of cases scarlet, and though there was a larger stock than ever yet there was not enough to go round. This may be accounted for to a certain extent, by the demand for boxes, for the success of these depends largely on geraniums, an indispensable article in making them attractive. When there is a large demand for these and vases it is very profitable to have lots of Cannas, Coleuses, Irisenes, Senecio and German Ivy, well grown in 4-inch pots, as they then cover lots of space, and also have some early tuberous rooted begonias in flower, a fine thing to mix in among the geraniums and foliage. Also don't forget now to look out for a large stock of dracaenas to grow on for next year's use, as large fine plants add greatly.

All are now busy planting roses; the stock is in good shape. C. Scrim has two houses planted with young carnations, Lawson and White Lawson, and they are good plants out of 4-inch pots. The outside plants had too much rain early in the season that gave them a yellow look, but are now starting off in great shape. Trade has been very good and flowers fairly plentiful. Peonies have sold well. The backward season obliged the horticultural society to postpone its rose show from last week until this week. Our public parks and the beautiful driveway are in grand shape; flower beds all planted and grass and shrubs looking fine, and the Government Improvement Commission still going ahead. That $60,000 a year is making Ottawa a really beautiful city.

Canadian Horticultural Convention

The eighth annual convention of the Canadian Horticultural Association will be held this year in Montreal (Natural History Hall), August 8-11. It promises to be the most instructive and enjoyable meeting the association has yet held, not only because of the excellent program that has been prepared, but because of the many beautiful gardens, parks and greenhouses that will be visited. Montreal excels any other city in Canada in this line on account of the large number of wealthy gentlemen's residences located there, many of which are kept up in first-class style. Members of the association will be guests of the city of Montreal August 10, and of the Montreal Gardeners' and Florists Club on August 11, so that there will be no lack of opportunity to see all the "lions."

The association takes in "any person interested in the advancement of horticulture on the recommendation of three members in good standing" (the latter part of this rule is more often neglected than observed) on payment of $2 as membership fee.

In view of the "extra good time" members will have in a place like Montreal it is expected that many horticulturists of various special proclivities, and those who help to run the horticultural societies through the country, will attend. The railways are giving a special rate on the certificate plan, that is: Buy a full rate first-class one-way ticket to Montreal from your station of departure and obtain at the same time a certificate on the standard form that you have done so. On arrival at the convention hall hand this certificate to the secretary of the association for him to fill in and sign. The Eastern Passenger Association will have an agent at the convention hall to revise all certificates for which a charge of 25 cents each is made. On returning, if there are 50 members or more who hold certificates (and it is probable there will be), on presentation of certificate to the ticket agent at the Montreal station a ticket to starting point will be given to the member on payment of one-third of one way first class fare. If there are less than 50 certificates two-thirds of one way first-class fare will be charged.

As to hotel or room accommodation at Montreal there is any amount of it at prices to suit any purse, and the reception committee of the Montreal Gardeners' and Florists' Club will endeavor to place everybody in comfortable quarters. The Welland Hotel will be the headquarters of the association. Programs and any other information may be obtained from the secretary, Mr. A. H. Ewing, Woodstock, Ont.

OUR SPECIAL CROP REPORTS

The special reports received by The Horticulturist from its correspondents in the leading fruit sections of Ontario indicate that the total fruit crop of the province this year will not be as large as promised earlier in the season. The peach crop will not be more than a medium one. Small fruits will be about a full crop. It is too early to predict what the total apple crop of the province will be, but the reports received by The Horticulturist indicate that the total yield of the province will be above an average crop.

The rest plum trees had last year, after the heavy yield in 1903, promises to result in another heavy crop this year. Several reports received by The Horticulturist are to the effect that some varieties will bear lightly, but these reports are the exception rather than the rule. Conflicting reports have come to hand regarding the outlook for pears, but the prospect is that the total crop will be a medium one.

A FAIR APPLE CROP.

In the Lake Erie district apples will not be better than an average crop. Bloom was abundant, but wet weather prevented the fruit from setting. In Essex county some winter varieties promise a full crop. In the Niagara district the same conditions exist, but the prospects are better in the Winona district than in Welland county. Reports from Winona and Stoney Creek state that apples are a full crop. The Lake Huron section reports are unfavorable and indicate that there is likely to be a light crop of several varieties, although winter apples are promising in some localities. Georgian Bay growers, however, anticipate that early, fall and winter varieties will be a medium to full crop. Pewaukee, Ben Davis, Spy and Russet are reported to show excellent promise.

In central Ontario reports vary. In the county of Wellington one report says the crop will be only 25 per cent. of last year's. Other parts give Spy and Alexander a full crop. On the whole, reports from this district show a falling off from last year's yield. In the Burlington section the production will be light to medium. Along Lake Ontario the prospects are the most encouraging east of Toronto. York county promises a light to medium crop, while in Northumberland indications point to a full crop of the winter varieties. The Ottawa Valley promises a medium to full crop. In the northern section not many apples are grown, but Algoma, Victoria and Peterboro each promise a medium to full crop. Reports from Nova Scotia and Prince Edward Island state that a full crop is promised.

PEAR SECTIONS GIVE FAVORABLE REPORTS.

Pears in the Lake Erie district are very promising. Late varieties are reported as being a medium to full crop. In the Niagara peninsula both early and late varieties are likely to be a good yield in most localities. Many reports state there will be a full crop. In the important Winona section, however, the crop will not be large. Along Lake Huron the crop will be light. In Georgian Bay district the pear crop is heavy wherever the trees survived the hardships of the past two winters. One or two reports say the blossoms were numerous, but late frosts destroyed them. In Central Ontario the crop will be light. Some reports give Keiffer pears medium to full crop. Burlington section promises a light crop.

HEAVY PLUM CROP.

The section along Lake Erie promises a medium to full crop, many sections reporting the trees heavily laden. In the Niagara district reports state a heavy crop is expected, but some varieties in the Winona district will be light. The Lake Huron and Georgian Bay districts report a full crop, though one report says plums will be as scarce as last year. Reports from central Ontario are sanguine of a heavy yield. Burlington and Lake Ontario crops vary from medium to full.

PROSPECTS FOR CHERRIES.

The cherry crop will be light in the Lake Erie district. In the Niagara peninsula the yield is likely to be good, but rot has set in. Lake Huron reports say the cherry crop is light, while Georgian Bay reports a medium to full crop. Conflicting reports come from central Ontario, but a light to medium yield is expected. Burlington growers expect a full crop. Along Lake Ontario growers anticipate a medium to full crop.

PEACHES AND GRAPES AN AVERAGE CROP.

Peaches and grapes are reported as being a light to medium crop in the counties along Lake Erie. The Niagara growers are counting on a medium to full crop of both. The total acreage of peaches is less than it has been for some years.

ABUNDANCE OF SMALL FRUITS.

The small fruits promise a good crop in the Lake Erie district. In the Niagara peninsula the reports favor a medium to full crop. In some sections the raspberries were winter killed. Wherever grown the small fruit promise to be a fair to heavy crop.

Attractive Packages

In a report issued by the Department of Trade and Commerce, Ottawa, under date of June 19, Mr. J. B. Jackson, Leeds, England, has the following to say about apples from Tasmania and Australia :

"Australian and Tasmania apples are arriving in large quantities. These apples are shipped in a nice sized box holding about 40 pounds of fruit, and are bringing wholesale to-day from $3 to $4.15 per box. The packing and grading is excellent. Each apple is rolled in tissue paper and all interstices in the box filled therewith.

"I have seen no apples imported into England that can in any way approach these apples, either as to packing or appearance. They come out of the box without the least sign of bruise or discoloration, and in as perfect condition as when picked from the tree. The best varieties sent are very fine in flavor, but do not excel the

best Canadians as we find them in the orchards in Canada.

"The boxes are well stencilled 'Australian' or 'Tasmanian,' together with the initials of the grower, and the place where grown. Within the box a neat showy card the full size of the box is found, printed in colors, stating where grown, the variety, and a guarantee that they have been packed and graded according to government regulations, together with the address of the grower and shipper. In every respect they are well packed, neat and attractive packages.

"These apples sell readily retail from 8 to 12 cents per pound. For the finest 'Canadian dessert apples' packed in boxes in this attractive form there should be a ready sale at prices almost double what the same apples bring in barrels."

Items of Interest

A Fruit Growers' Co-operative Association was formed at Cowal recently. The officers elected were: Pres., R. J. Hine, Dutton; vice-pres., John Lyons, Wallacetown; sec., Robert Campbell, Cowal.

The new prize lists for the Toronto Exhibition are out. The secretary, Dr. Orr, promises that this year's show will eclipse all former attempts. The first entries have already been received. This year the cash prizes are larger than ever before.

The Ontario Agricultural College calendar for 1905-1906 is a neat booklet and gives a careful, comprehensive outline of the different courses. Numerous illustrations of college scenes and students at work in the different departments add to its make-up and efficiency. The horticultural department is well equipped. The calendar contains an outline of the courses, terms of admission, etc.

In the report issued by the Department of Trade and Commerce, Ottawa, under date of June 19, Mr. P. B. Ball, of Birmingham, England, speaks favorably of the chances for Canadian apple growers making money by exporting cider apples—or better, the manufactured product.

Berry Boxes Must Be Full Size

In 1901 "an act respecting the packing and sale of certain staple commodities" designated weights and measures to be used in handling these commodities. Section 5 dealt particularly with fruit packages. Boxes were to contain specified quantities, and every box manufactured or offered for sale was to be plainly marked on the side with the word "short" if it did not hold that quantity when level full. The small boxes should hold at least two-fifths or four-fifths of a quart, while baskets may be two and two-fifths quarts, six and two-thirds quarts, 11 quarts and 15 quarts or more, as nearly as practicable.

The penalty for violation of this act is a fine of not less than 25 cents for each basket or box sold or offered for sale in contravention of this section.

This law has not been fully enforced. Recently, as a result of representations made to the Dominion Department of Agriculture by fruit growers and by the box and basket manufacturers who have been making full sized packages, a notice has been issued that special care is going to be taken to see that the law is complied with in the future.

An Illustrated Lecture

The Hamilton Horticultural Society is fortunate in having a president who is as interested and enthusiastic in the growing of flowers as is Mr. J. O. McCulloch. At a recent meeting of the society Mr. McCulloch gave an interesting lecture. "The plants that I have grown" was the theme of the address, which was illustrated by stereopticon views of the plants and flowers discussed, all of which are grown in the lecturer's own gardens. The audience were carried through a descriptive succession of bloom of the seasons, spring, summer and autumn.

Some fine views were shown, among which was one of the red-hot poker, or torch plant, of the genus kniphofia, which plant makes a splendid show even upon canvas. Mr. McCulloch referred to this plant as being a native of Africa, and not quite hardy here, but one that will amply repay the trouble of protecting or

WE wish to thank our many customers for a spring business much beyond our anticipations.

Be sure you are on our mailing list for our Fall Catalogue of Bulbs, Ornamental Shrubs, Hardy Perennials, etc.

THE WEBSTER FLORAL COMPANY, LIMITED
HAMILTON, CANADA.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

storing over winter. It is one of the most striking plants under cultivation, sending up from a dense mass of sword shaped leaves several tall scapes, each surmounted by a pyramidal poker, from 8 to 10 inches long, and bearing about 100 drooping flowers of a fierce, fiery red color, hence its name. Details of the cultivation of each flower shown and discussed were given, and the audience listened to a very instructive and interesting discourse.

A Talk on Insect Pests

The Toronto Horticultural Society at its June meeting had the pleasure of entertaining Dr. Fletcher, entomologist, from the Experimental Farm, Ottawa, who delivered a lecture on "Insect pests and how to exterminate them," which was illustrated by stereopticon views. The society made the doctor's visit not only pleasant for himself but to all, as fine vocal talent was engaged which made the evening pass very pleasantly. The society invite their friends to join with them on their annual excursion to Guelph July 5th, leaving Toronto at 9.30 a. m.: tickets $1.00 and return.—(H. R. Frankland, President.

A Change in Officers

At a meeting of the directors of the Deseronto Horticultural Society held recently, Mr. D. McClew was appointed secretary and treasurer to succeed the late Mr. R. W. Lloyd. Mr. F. B. Gayford was unanimously elected president in place of Mr. D. McClew. A flower show is being planned for the early fall.

Prizes are to be offered later for the best kept grounds of members of the society, and judging from the improved appearances of several of the surroundings of the homes of members, many are preparing for the competition. This year there will be likely some changes made in the classification of this competition.

Instructive Meetings

The Ottawa Horticultural Society held another of its interesting and well known meetings June 20, when Dr. Fletcher, of the Experimental Farm, gave an address on "What plants do." The floral exhibitions at this meeting were of the usual high standing. On July 25 this society will listen to an address by the Hon. Frank R. Latchford on "Tree peonies," and Mr. S. Short will speak on "The making of a suburban garden."

The Lady of the House

should have a Clothes Line Reel for the yard. Clothes lines always up; never let clothes fal into the mud; never catch the unwary man passing under; easy to put clothes on; easy to take them off—**complete—cheap.** Write for circular and quotation.

(See our Ladder Advertisement on last page of cover of this issue.)

THE WAGGONER LADDER CO., LIMITED
LONDON, ONT.

Remember

Most of the very best

FRUIT TREES, VINES AND ORNAMENTALS

you see making such vigorous growth in the different orchards came from

The Helderleigh Nurseries

Write for our beautiful catalogue.

AGENTS WANTED

E. D. SMITH, Winona, Ont.

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

Has Been a Force for Good

V. KNECHTEL, SECRETARY

The Seaforth Horticultural Society is in a more flourishing condition than ever. It has 119 members this year, and prospects of a larger membership for next year. In May we had a public meeting. The attendance was not as large as expected, but attention and interest was good. Mr. T. H. Race, of Mitchell, gave an address on "Bulb culture and its attractions," which was very interesting and instructive.

The society has been a force to increase interest and taste in our home surroundings, and the appearance of our homes has been much improved. A very much better quality and variety of plants and flowers are now seen. In our fruit culture there has been much improvement. The information supplied in the welcome Horticulturist has enlarged our ideas and stirred up our desire to have the best that is offered.

A great improvement is being made in the already extensive greenhouses of Mr. J. H. Dunlop, Toronto. The old houses are being torn down and four new ones substituted. The most modern greenhouse architecture is being used and every convenience added. On page 285 Mr. Dunlop has an advertisement offering the sash-bars, etc., for sale.

Canadian National Exhibition

TORONTO, ONT.

August 26th to September 11th, 1905

Entries close on Monday, August 14th, for Horticulture, Floriculture, Vegetables, Field Roots, Grain, Sections, Etc.

For prize lists and entry forms apply

DR. J. O. ORR, Manager and Secretary
TORONTO

GET OUR CATALOGUE OF
RUBBER STAMPS
AND STENCILS
THE SUPERIOR MFG. CO.
58 ADELAIDE ST. W. TORONTO.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

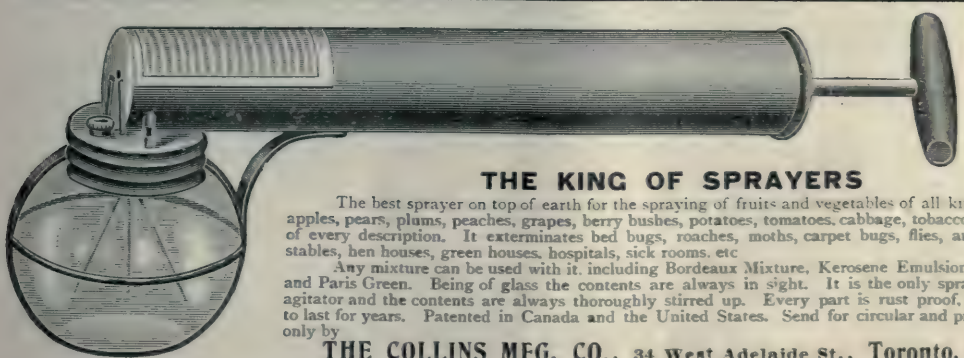
FOR SALE—FRUIT FARM OF 200 ACRES, Township of Niagara, will be sold en bloc or divided to suit purchaser. Hundreds of farms, stores, factories, etc., on my list. W. J. Doran, Manning Chambers, Toronto.

GREENHOUSE AND STOCK FOR SALE—TEN thousand feet of glass; one of the best equipped greenhouses in Toronto, located in the best residential sections of Parkdale, large plant trade; residence, stable and everything in good condition. Apply to F. C., care of The Canadian Horticulturist.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY
Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.



THE KING OF SPRAYERS

The best sprayer on top of earth for the spraying of fruits and vegetables of all kinds, such as apples, pears, plums, peaches, grapes, berry bushes, potatoes, tomatoes, cabbage, tobacco and flowers of every description. It exterminates bed bugs, roaches, moths, carpet bugs, flies, and disinfects stables, hen houses, green houses, hospitals, sick rooms, etc

Any mixture can be used with it, including Bordeaux Mixture, Kerosene Emulsions, Hellibore and Paris Green. Being of glass the contents are always in sight. It is the only sprayer with an agitator and the contents are always thoroughly stirred up. Every part is rust proof, so its bound to last for years. Patented in Canada and the United States. Send for circular and prices Made only by

THE COLLINS MFG. CO., 34 West Adelaide St., Toronto, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Caught in a Glut

is what happens to the fruit grower who depends on one market to take his crop.

Fortunately their is no need to be thus caught. Canada is wide. There are many centres from Halifax to Calgary anxious to get good fruit from a reliable grower.

THE CANADIAN GROCER is the medium through which the grower can reach these buyers.

An advertisement in our Fruit Department costs little and goes far.

Drop a card for rates.

The Canadian Grocer

TORONTO, ONT.

Extension Ladders.

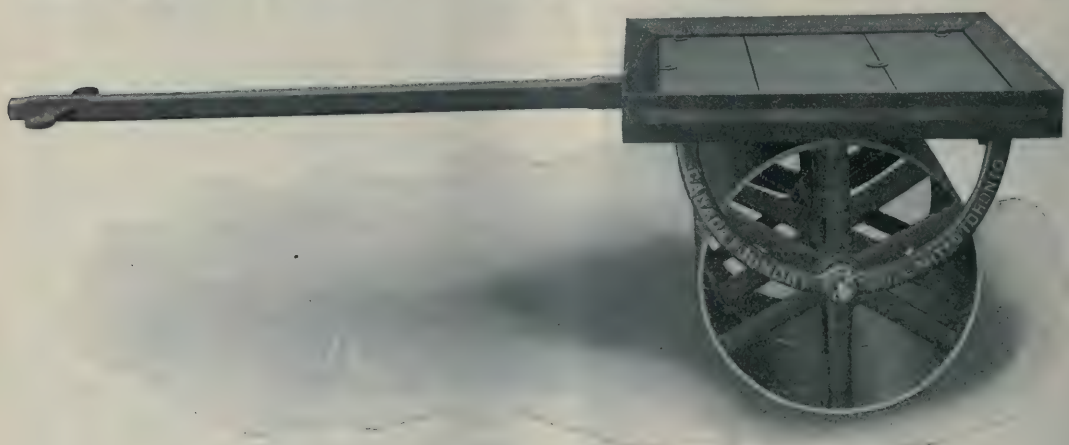
Of modern appliances for orchard work there are few quite so important as a good extension ladder. In the old days fruit growers took a pole of tamarack or cedar, ripped it in two half round sections and put rungs in. Where the height required was small, 10 or 12 feet, this served very well, but where, as it often happened, it was necessary to get to the top of a tree 25 or 30 feet high to get the apples or pears —well, we usually did not get there. Seldom had we a ladder long enough, or if we had it took a neighborhood "bee" to raise it, and when it was finally put in or let fall into place with a bump it knocked off half the fruit it was meant to gather.

With a good light safe extension ladder one man can place it just where he wants it, even a 32-foot ladder, then extend it and place it gently just where the best fruit is, even in the middle top of the tree where the long single ladder cannot be placed at all. Two or three sizes of good extension ladders in a small and moderate sized orchard, and more in a larger one, will pay for themselves in a few days in apple picking time. In this as in other farm and orchard appliances it pays to get the best.

NEW ADVERTISERS IN THIS ISSUE.

Canadian National Exhibition, Toronto.
Firstbrook Box Co., Toronto Ont.
Biggs Box Co., Burlington, Ont.
Geo. Vipond, Montreal, Que.

LAWN ROLLERS



Well made, light and serviceable. Can be weighted when desired.

CANADA FOUNDRY COMPANY, LIMITED

HEAD OFFICE: TORONTO

District Offices: Montreal, Halifax, Ottawa, Winnipeg, Calgary, Vancouver, Rossland

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

A Highly Commended Plum

The new Maynard plum, which is said to be the greatest plum creation of that wizard of horticulture, Luther Burbank, is being sold in Canada by Stone & Wellington, nurserymen, who have bought the sole right to sell this plum in Canada. On every tree they sell they are under contract to give Mr. Burbank a royalty. Mr. Burbank has sent out the Maynard plum with the assurance that it surpasses in quality and beauty of fruit any plum heretofore introduced. In fact, some leading growers believe that in the Maynard plum he has reached the point of perfection. In size it is very large, often measuring seven and a half inches in circumference. The form is nearly round, slightly flattened at the ends; in color it is a rich crimson purple, deepening to royal damask as full ripeness is reached. A more beautiful fruit were hard to imagine. The flesh is firm even when dead ripe, but melting and juicy with a deliciousness indescribable. The fruit, therefore, for table use and as a shipper has no competitor.

Apple and Fruit Boxes

After considerable agitation covering many years the apple growers of Canada have opened their eyes to the necessity of marketing their fruit in boxes, along the same lines as is done by the growers in California, who have been so successful. The boxes containing California fruit are all well made and well printed, giving the contents a splendid display appearance.

The Firstbrook box Co., Limited, of Toronto,

Keep the weeds down by using the

"Handy Hand Scuffler"

the best tool in the market for farmers or gardeners. See Candian Horticultuuist of April for particulars. **Wm. Welsh, Kinkardine.**

GEO. VIPOND & CO.

Fruit Commission Merchants

MONTREAL

Reliable—Prompt—Safe

MONEY EASILY MADE BY OUR READERS

$10.00 will be given away free by The Canadian Horticulturist to readers who purchase goods from it's advertisers. All you have to do is to tell the advertisers you read their advertisments in The Horticulturist

HOW TO OBTAIN THE MONEY

$5 will be given to the person who buys goods to the greatest value from advertisers in this issue before July 30, 1905.

$5 will be distributed, one dollar to each, among the first five persons making application, who have purchased goods from our advertisers.

Readers must tell the advertisers they saw their advertisements in The Horticulturist.

A valuable premium will be given to all who do not win cash prizes. A premium will thus be given to everybody who buys something from advertisers in The Horticulturist.

When applying for a prize readers must inform this office of the name or names of the advertisers they purchased from. Application for this bonus must be made before August 15, 1905. Address ADVERTISING MANAGER, The Canadian Horticulturist, Toronto, Ont.

Thro rebuilding operations we have a quantity of

Second Hand Material

viz

Sash Bars, Ridge, Puoiln, Ventilators Glazed, 1 in. Pipe for Supports, Headers, Etc.

Any person contemplating building can buy the above at bargain prices.

JOHN H. DUNLOP

644 Lansdowne Ave. TORONTO

NEW ADDRESS: 239 YONGE ST.

Galbraith Photo Co.

LEADING LANDSCAPE AND COMMERCIAL

Photographers

IN CANADA

Call and see our new premises

239 YONGE ST. TORONTO

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

have taken the first place in the manufacture of fruit boxes, and the quality of work they turn out speaks for itself. Any information as to sizes, printing and prices will be gladly furnished on application. A great feature of the box goods is they are in great demand, command a much higher price than barrel goods, and shippers make a great saving in freight, as boxes can be packed on board cars and vessels very compactly.

Steamships Improved

Recognizing the importance of the green fruits, dairy and provision trade to the Dominion, and the possibilities of its great development, the Thomson line fleet has been fitted with the most up-to-date system of refrigeration and cool air, and the delivery to the consumer at London improved. An arrangement has been made with the Surrey Commercial Dock Co., London, Eng., to equip immediately alongside The Canadian Produce Warehouses west berth, in the Greenland dock, with refrigerated and cool air chambers at a cost of over £70,000. The berth alongside the warehouse so fitted is for the exclusive use of the Thomson line, and their vessels are the only ones that can discharge direct from the vessel's hold into the specially prepared cold storage provided for the apples, cheese and butter.

The Thomson line has procured the exclusive use of the Gould patent loaders in the ports of Montreal and Portland. The loaders are so constructed as to pass package goods into the holds of the vessels without any jar, squeezing or breakage, and the line is thus enabled to deliver its cargo at destination in the best condition. We can confidently recommend these loaders to apple exporters. This line has had many years' experience in the carrying of green fruit, and has earned an enviable reputation both in the Mediterranean and Atlantic trades. All the vessels of this line are fully equipped with steam and sirocco fans, and no expense has been spared to make these vessels the best of any on the Atlantic.

Recognizing the necessity of an up-to-date refrigerator service on the Glasgow route, the Donaldson line has fitted up special steamers, giving unexcelled cold storage facilities for the carriage of all classes of products, the carriage of apples and other green fruits and vegetables being a specialty. In addition, the vessels are fitted with sirocco fans of the latest type, which make this line so favorably known as amongst the most successful apple and fruit carriers on the Atlantic.

Quality and Price.—The fruit grower who prides himself on the quality of his fruit and who is careful in grading and packing deserves a better price for his fruit than his less careful neighbor. The way to get that price is to brand his packages and advertise the brand in a medium that reaches the trade.

ATLANTIC REFRIGERATOR SERVICE

THOMSON LINE

Montreal and London Service

Iona, - cold storage and cool air, **July 8**
Devona, cold storage and cool air, **July 15**
Kildona, cold storage and cool air, **July 22**
Hurona, cold storage and cool air, **July 29**
Fremona, ...**August 5**

Direct service to Newcastle, Leith and Aberdeen. Sailing cards will be furnished on application.

DONALDSON LINE

Montreal and Glasgow Service

Athenia,.... cold storage.....**July 8**
Lakonia,... cold storage.....**July 13**
Salacia,.....**July 20**
Kastalia,... cold storage.....**July 27**
Tritonia,.....**August 3**

LORD LINE TO CARDIFF, fortnightly sailings.

FOR SPACE APPLY TO

THE ROBERT REFORD CO., LIMITED

STEAMSHIP AGENTS

Montreal, Toronto, Portland, Me., St. John, N. B.

TORONTO OFFICE: Room 110, Union Station **D. O. WOOD, Western Agent**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

The Canadian Horticulturist

AUGUST, 1905

VOLUME XXVIII NUMBER 8

WIDE AWAKE BRITISH COLUMBIA FRUIT GROWERS

A. M'NEILL, CHIEF FRUIT DIVISION, OTTAWA.

THE Province of British Columbia is progressing very rapidly in the matter of fruit growing. The climate (we might say climates, for British Columbia has several) has much to do with this advancement. The islands, coast and lower mainland are particularly adapted to small fruits, though excellent fruit trees are also grown in large sections of this country. The semi-arid inland valleys are particularly adapted, under irrigation, to the cultivation of apples, plums and cherries. With the development of the various schemes for irrigation it is not at all improbable that in the near future British Columbia will supply fruit enough to meet the demands of the prairie provinces.

Another most potent cause for the excellence of the methods employed in British Columbia is the fact that many of the fruit growers have gone into this province quite lately totally unacquainted with fruit growing, having, however, considerable capital. These men are not loaded down with a quarter of a century of prejudice, but come to their work fresh and willing to imbibe the latest and best from books and from their most successful competitors in the business. This will account for the fact that on the average the methods of British Columbia are infinitely ahead of those of the average fruit grower in eastern Canada.

In the Okanagan Valley irrigation is almost a necessity. This determines, to some extent, the nature of the product, as well as the methods employed in producing it. Clean culture is almost uniform. Where water has to be conveyed for many miles in an artificial water bed, constructed at great cost, it does not take long to convince the fruit grower that he should not waste it upon grass and weeds.

EARLY FRUITING.

The control which the orchardist has over his trees contributes to the early fruiting of nearly every variety of tree, and probably the dry atmosphere has much to do with the perfect pollenation of fruit blossoms. The setting of the fruit is usually what an eastern fruit grower would call phenomenally heavy, and has led to another orchard practice, almost unknown in eastern Canada, namely, thinning of the growing fruit, even on apple trees. It would strike the average Ontario or Nova Scotian grower as a waste of money to pay a man $1.25 a day to pull good apples off a full grown apple tree, but this is the common practice in British Columbia, and one which is a necessity.

The one fruit tree that is not thinned is the cherry. I took a branch of May Duke cherries, a foot long, from the orchard of Mr. Pridham, of Kelowna, and found that there were 154 perfect cherries on it. Apparently there were dozens of branches that could have been selected from the same tree quite as heavily loaded.

The dry atmosphere probably accounts for the absence of fungous diseases in apples, cherries and plums, but it is the excellent cultural methods that have to do largely with the fine quality of the fruit. Here again the influence of the environment is very clearly to be seen. The local market is a comparatively small one. Everything is packed for the distant markets. Hence, great attention is given to grading and packing. Their teachers in this were the Americans in California, Washington and Oregon, who by long and costly experience had demonstrated that it did not pay to ship inferior or over ripe fruit.

The fruit grower of British Columbia, profiting by this experience, spends time and thought upon packing and packages that would seem wasteful to an eastern grower, but the result of this is seen in the prices which they obtain for their fruit. Calgary markets give about $2.50 per box for British Columbia fruit when they only give $4 per barrel for Ontario fruit.

There is no reason why the apple growers of Ontario should mix different grades, and ship in barrels, fruit, which if properly packed and graded, would equal in every respect the British Columbia fruit. It is very true that the eastern orchardist has a larger proportion of No. 2 fruit than the British Columbia grower, but there is comparatively little difference between the best fruit of Ontario and the best fruit of British Columbia. The difference is largely in the intelligence, skill and care of the growers.

HIGH WAGES.

Surprisingly high wages are paid to laboring men. For ordinary orchard work $1.25 to $1.75, with board, per day was given. Some of the larger plantations have expert fruit men from the Pacific states to whom the owners pay salaries that professional men in the east might envy.

Many of the larger estates on which cattle feeding was tried are being broken up into small lots devoted to fruit growing. The delightful climate, where the temperature rarely goes, even in the coldest weather, down to zero, and that only for a few weeks in the year, has attracted many farmers, who have accumulated a competency in Manitoba or the Territories. The next largest class would be comparatively wealthy Old Country people. All these make most desirable citizens.

The social conditions are not those of a primitive settlement. There is an air of refinement and leisure everywhere which bespeaks not only culture but material prosperity. Libraries and lawn tennis flourish with the fruits. Churches and schools are well equipped and generously supported. Parks and home grounds abound, where trees, grass, flowers, rocks and water are worked into beautiful landscape effects not easily duplicated in the east. It is not a mere figure of speech to say that British Columbia is the California of Canada.

Grain in the Orchard.—Many advocate leaving grain in the orchard in the fall for the mice. They claim that when there is plenty of grain the mice will eat it and leave the trees alone. My experience has been that when I leave any vetch on the ground that has seed in it the mice will gather in great numbers, more than they otherwise would, and that they will girdle the trees just the same.—(Jos. Tweddle, Fruitland, Ont.)

Draining Orchards.—I might as well go out of business as give up tile draining in my orchards. One of the drains stopped up one spring and I lost 15 trees through the water backing up.—(Adolphus Pettit, Grimsby, Ont.

SODA BORDEAUX (BURGUNDY MIXTURE)

FRANK T. SHUTT, M. A., CHEMIST, EXPERIMENTAL FARMS.

DURING July a number of reports were received, both from Ontario and Nova Scotia, stating that serious injury has resulted from the use of Soda-Bordeaux on apples, plums, cherries and peaches. These communications have been accompanied by requests for information respecting this newly-introduced mixture. A brief account of certain experiments recently conducted at the Experimental Farm, Ottawa, may, therefore, be of value and interest to fruit growers generally.

In Soda-Bordeaux, or Burgundy mixture (suggested as an alternative for the ordinary Bordeaux mixture for potato blight and rot), washing soda (carbonate of soda) is substituted for lime in the preparation of the spray. Two formulæ have been recommended:

	A.	B.
Copper sulphate (bluestone)	6 lbs.	4 lbs.
Washing soda (carbonate of soda)	7½ lbs.	5 lbs.
Water	40 gals.	40 gals

A simple calculation will show that the proportion of bluestone to washing soda is the same in each, but "B" is a more dilute preparation.

As far as the writer can learn, paris green, white arsenic, or some other arsenical compound, had been added to the Soda-Bordeaux in every case in which injury was reported from application to fruit trees. When paris green is mixed with ordinary Bordeaux mixture it is not dissolved, but remains in suspension, and experience has shown that no injury results from the use of such a spray. When, however, paris green is added to Burgundy mixture it is partly dissolved, owing to the alkaline compound more or less corrosive to foliage. It has long been known that soluble arsenical compounds have this injurious effect upon foliage, and consequently cannot be used in insecticidal mixtures. It follows from this consideration that the addition to the Burgundy mixture of a solution made by boiling white arsenic and sal soda (resulting in the formation of arsenite of soda), as practiced by some, would render the spray extremely injurious. For these reasons it might well be conjectured that the addition of paris green or arsenic in any form to the Burgundy mixture would render it unsafe for use on fruit trees.

One of the Fruit Farms For Which British Columbia Is Becoming Famous.

The Richter orchard and farm at Keremeos, Similkamean, British Columbia, is here shown in part. The light background is the steep side of a high mountain. On this farm the alfalfa fields yield four crops annually. Apricots, peaches, almonds and grapes, including Black Hamburg, reach perfection.

Our recent experiments comprise trials on apples, cherries and plums with the following mixtures:

"A"—Soda-Bordeaux (Burgundy mixture:

Copper sulphate (bluestone)	4 lbs.
Washing soda	5 lbs.
Water	40 gals.

The bluestone and washing soda were dissolved separately in half the total volume of water and the resultant solutions mixed. This mixture, it will be observed, contains no paris green or arsenic in any form.

"B"—Soda-Bordeaux, as above, to which was added 4 ounces of paris green.

"C"—Soda-Bordeaux, as above, to which was added a solution made by boiling together 8 ounces of white arsenic and 2 pounds of washing soda with 1 gallon of water.

RESULTS AND CONCLUSIONS.

"A"—No apparent injury to the foliage of apples, plums and cherries.

"B"—Apples: A few leaves slightly scorched at the edges. The probabilities are it will be found that the varieties differ somewhat in their ability to resist the corrosive action of this spray, but the results obtained so far indicate that its use would be attended with a considerable degree of danger in the apple orchard.

Plums: Scorching of the leaves quite evident, though injury not very serious.

Cherries: Results rather similar to those obtained on apple foliage. It is extremely doubtful if this spray could be used for this crop with safety.

"C"—Apples, Plums and Cherries: In every instance in which this spray was used excessive injury resulted. The foliage was badly scorched, subsequently becoming crisp and falling. The damage was such as to show conclusively that this spray is quite unsuitable and dangerous in the highest degree for all classes of fruit trees.

In a word, Burgundy mixture, pure and simple, has shown itself, as far as our experiments have gone, to be non-injurious to foliage. When, however, paris green is added the spray becomes more or less corrosive to foliage and its use is attended with danger. The addition of soluble arsenical compounds, as in "C," renders the spray extremely injurious to foliage, entirely prohibiting its use."

When it is desired to use paris green as an insecticide in the spray, Bordeaux mixture made with lime only should be used.

BURGUNDY MIXTURE HARMFUL

THE Burgundy mixture, used in many orchards during the past season, has given poor results in several cases. Growers in the Winona and Grimsby districts have destroyed a great percentage of their trees as a result of its use.

"The total damage to my trees amounts to about $1,000," said Mr. E. D. Smith, to The Horticulturist a few days ago. "Nearly 2,000 plum trees and 500 cherry trees have been injured. Some trees were so badly scorched that I do not think they can recover. Smaller trees received a heavier spray than larger ones, so that the younger stock was damaged the most.

"We used the proportions recommended by the leading authorities, but did not test every time with litmus. With the ordinary Bordeaux mixture an excess of copper sulphate is all that has to be guarded against. An excess of lime makes no difference. In the Burgundy mixture, however, the proportions must be just right. An excess of sal soda seems to be just as injurious as an excess of copper sulphate. It is easy to prepare, but just as easy to make a mistake in the preparation of it. The nozzles never clog, and the mixture being colorless does not discolor the fruit, but I do not think I shall ever use it again."

THE SAN JOSE SCALE STILL SPREADS

J. FRED. SMITH, SCALE INSPECTOR, GLANFORD, ONT.

THE San Jose scale is slowly but surely spreading from all the old infested spots in Ontario. Only those who have been in close touch, and have taken a keen interest in the spread of the scale, are aware of how far it has spread since the Act was passed in 1898.

When I was appointed scale inspector in February of that year it was expected by the department that all the scale in the province would be destroyed and that by passing an Act to prevent trees coming in from the United States we would soon be free from it. Instead, there is more scale in Ontario to-day than ever before.

It spreads so quietly and insidiously that it may be in an orchard for some time before the owner is aware of its presence. I do not know of a single case where scale has been found in an orchard, and where it was allowed to remain long enough to spread from the original tree, that it has been cleaned out. The reason for this is plain when you are conversant with the way it spreads. Very frequently trees nearest an infected tree are practically free from the pest, while those at a considerable distance are badly infested. It is liable to break out anywhere within a mile of the original infested tree.

Despite the fact that some of the professors of this province scoffed at my opinion that the principal means of its spreading is by the winged males I still hold firmly to that opinion. These winged males carry the infant ,or larvae, from an infested tree and thus perpetuate the species. Otherwise the scale would be exterminated because the tree would soon die and the death of the scales on it would follow.

My reason for considering the male scales the chief medium of its spread is the one of choice. Some varieties of trees will stand in the midst of a very badly infested orchard and be almost free from scale, while those around it are literally covered with it. I cannot see why some people consider it such a ridiculous idea. Take for instance the spread of the codling moth. Every one knows that its spread is by the moth herself, which flies around and deposits her eggs on the apples, not indiscriminately, but after making a choice. Every orchardist who is at all observant about insects, knows that some varieties of apples never have worms if there are plenty of others to be attacked. The moth distinguishes the varieties when the fruit is so small that we ourselves could not tell what kind it was if we did not see the tree on which it was growing.

Another reason for thinking the male scale is the culprit has been obtained from information gathered after an infested tree has been planted in an orchard. I have known cases where the tree had stood for two or three years and then, on becoming aware of the presence of the scale the owner destroyed the tree and there has never been a scale found there since. But I have known other cases where such a tree was left for a time, and just as soon as it became overloaded and a spread was necessary for the perpetuation of the species, the scales could be found not only close by but at a distance. Especially is this so if varieties near are not to its taste. In a district where the scale is bad growers frequently say, "No, you never find much scale on those trees. They do not seem to like them."

I have said that I do not know of an instance where the scale had spread from the original tree or trees, and I wish to emphasize the words "spread from," as there are, I think, somewhere about 100 places in different parts of Ontario where the scale was caught in time, and not a scale has ever been found there since. A notable instance of this came under my observation this

spring. In the year 1898 a consignment of trees was shipped to Belleville, and during inspection it was found that this carload had some scale in it. A list of all the places where the trees had been sent was secured, and everything on which scale could be found was destroyed. This spring the growers of that section became alarmed and sent in a petition to Hon. Mr. Monteith, the Minister of Agriculture, asking for an examination, and I was ordered to go down. I made a careful examination of those places most convenient to Belleville in which the scale was found in 1898. Although it is now seven years since those trees were destroyed, which would give the scale time enough to make an appearance, still I could not find a single scale. The fact, however, remains that there is more San Jose scale in Ontario than ever before.

New Heads for Cherry Trees

J. L. HILBORN, LEAMINGTON, ONT.

What is the best plan to deal with my lot of 25 cherry trees? They are thrifty and measure one and a half inches through the trunk. I procured them two years ago from the corners of the fences. They grew from the common cherry. I would like to grow new tops of the latest and best varieties. Shall I do it by budding or grafting, and at what time, and should the work be done in a different way from apples? —(J. G. Wait, Wicklow, Ont.

The cherry cannot be grafted so far as I know. The tops might possibly be changed by budding in early August, but I do not think it advisable to try it. I would grow them as they are, as that is a good variety. The Montmorency is considerably larger, finer and later, but I do not think it practical to change such large trees. They are always budded the first season of their growth.

Picking and Handling Apples

W. H. DEMPSEY, TRENTON, ONT.

APPLES require great care in gathering and handling if the most is to be made of them. They should never be picked until they are matured, well colored, and of full growth yet firm. They should, however, be picked before they have commenced to decay or fall from the tree ripe.

I have found that apples picked under the conditions described, and placed in the fruit house the same day, will keep better than when green or over ripe. When green they are subject to scald in the barrel or box if the temperature is warm, and if there is any fungous on them it will continue to develop. I have seen hundreds of barrels thrown out from this cause. If over ripe a great many will be found to have decayed by shipping time and many more will decay before they reach the market, and arrive in a wet, wasty condition.

I Have 1,200 Plum Trees in bearing, including 60 or 70 varieties. There are two distinct classes of plums, the Domestic and Japanese. The Japan class has a positive brilliant color with a certain pineapple flavoring. It is also claimed to be more exempt from plum rot and the attacks of the curculio. In the domestic class the best varieties are Lombard, Reine Claude, Glass Seedling, Bradshaw, Niagara and Imperial Gage. Of the Japan class the leading varieties are Abundance, Burbank, Willard, Chabot and Satsuma.—(A. W. Peart, Burlington, Ont.

If Trees Are Overloaded so that they cannot bear fruit to maturity it is better to thin the fruit in August than put props under each limb. The prop I prefer is the removal of the fruit. If the tree has such a load that it cannot hold it up without splitting, by all means remove enough to bring the tree through without injury, so that it will be in a condition to fruit the following season instead of having to wait a year or two to recover from the overload.—(W. H. Dempsey, Trenton, Ont.

SUMMER APPLES IN COLD STORAGE

G. B. ROTHWELL, B. S. A., OTTAWA, ONT.

DURING the summers of 1903 and 1904 I conducted several experiments with summer apples in a refrigeration building of the Hanrahan type. Two main objects were kept in view: first, to illustrate the advantages of an efficient type of ice refrigerator to the farmer; second, in accomplishing the above end, to show the value of storing non-keeping varieties of summer apples. In the working out of the latter, owing to a number of experiments being suggested by the differing conditions encountered, the work resolved itself into the handling and methods of storing apples.

The apple used, in the majority of the experiments, was the Duchess of Oldenburg. This apple is largely grown in eastern Ontario and in the eastern provinces, and is a typical midsummer apple. The fruit is medium to large in size, of a light yellow color striped with bright red, and has, when mature, a very agreeable semi-acid flavor. It is, at best, a poor keeper, retaining its flavor and texture only a short time after maturing, if kept under ordinary temperatures. For this reason and because of its popularity on local markets, especially in more northerly districts, it was chosen as a basis for experimentation.

METHODS OF PACKING.

Four methods of packing were adopted: (1) Stored in ordinary bushel boxes; (2) ditto, each specimen being wrapped in a quarter-section of unprinted newspaper; (3) wrapped in tissue paper and again in waxed paper similar to that used in wrapping butter; (4) packed in small kegs of sawdust. Sixteen bushels were stored, four separate pickings and four separate packing methods.

Pickings were made on August 4, 15, 25, and September 1. The apples picked on August 4 were immature in every way, being only slightly colored and acid in flavor. Those picked on August 15 were also immature but were fairly well colored. Those picked on August 25 were almost ripe, lacking only the yellow tinge to being fully colored and being only very slightly acid in flavor. Those picked on September 1 might be said to be dead ripe.

The two first lots, immature when picked, retained their immaturity throughout. On November 15 several were spotted on the green or uncolored side, the spot somewhat resembling a sun-scald. They still retained their acid flavor, but shortly after lost even this and became flat and tasteless. The lot picked on August 25 were, on December 15, perfect in texture and flavor, although they had at this date evidently reached their limit of keeping. Shortly after a distinct falling off in flavor was noticed. Those picked on September 1,

Ready For Pressing—No. 1.

A handy device used on Coldstream Ranch, Vernon, British Columbia, for the packing of fruit, is here shown. The box of fruit that can be seen is ready to be pressed so that the ends of the cover may be firmly nailed. Before applying pressure by means of the bar of wood over the box the small wooden frame work, leaning against the box, is placed on top. The pressure is applied on this framework to prevent injury to the fruit. As this framework is not as long as the box there is plenty of room at the ends for nailing.

dead ripe when stored, were, on November 15, lacking in both texture and flavor. They were soft and in some cases discolored and the flavor was becoming flat.

THE EFFECT OF WRAPPING.

Comparing the unwrapped apples with those wrapped; on November 15 no decay was found in the latter, while in the former two or three specimens were removed. The flavor of the wrapped specimens was, if anything, slightly better than the other. The third lot, wrapped more carefully in double wrappings of paper, showed a perceptible improvement over the newspaper-wrapped lot. However, it is doubtful if the extra gain was worth the extra trouble and outlay. Sawdust was found, in this case, to be a very undesirable material in which to store fruit.

Similar experiments were made with the Langford Beauty and the Fall St. Lawrence. Both are typical varieties of non-keeping, early fall apples. The Fall St. Lawrence apples were placed unwrapped in three bushel boxes, each box representing a different packing. Some were picked on September 12 and were rather immature. These did not improve as the storage period advanced. Others picked on September 18 were almost perfect. They had reached their limit on December 1, but were then perfect. Others picked on September 27 were fully matured. They lost their flavor earlier than did those of the former lot.

The Langford Beauty specimens were also placed, unwrapped, in bushel boxes. They showed the same tendencies as the other varieties. The earlier picked lot retained their immature flavor throughout the experiment. Their texture also remained perfect throughout. Those picked on September 7 were almost fully mature and were perfect on November 15, but had then reached their limit. The peculiarity of this variety seemed to be its early loss of flavor, the texture remaining firm.

BENEFITS OF WRAPPING.

A separate experiment was carried on with the Tetofski apple to ascertain the benefits of wrapping fruit. The Tetofski is a very early variety, and it is found particularly difficult to keep it for any length of time after maturity. Consequently it is a very suitable variety with which to test more fully the benefits of wrapping. The apples were placed in four bushel boxes on August 1, when they were almost ripe. The same methods of wrapping were employed as in experiment 1, namely, (1) unwrapped, (2) wrapped in newspaper, (3) wrapped in tissue paper and waxed paper, (4) packed in sawdust.

The results obtained were practically the same as with the Duchess apple, with the exception that these apples, being soft and easily bruised, were even more benefited by the protection afforded by the paper. These apples, under any method of storage, could not be kept for more than one month. September 1 is about their limit of keeping. On this date the wrapped specimens were perfect in appearance and flavor. The unwrapped specimens were discounted considerably by bruised and spotted specimens. Sawdust, again, proved very undesirable as a storing medium.

THE POINTS PROVED.

The experiments show conclusively that the early apple is very greatly benefited by some protective covering. Although this is especially the case with the early apple, many late varieties, such as the American Russet, are similarly benefited. Where apples are stored in small quantities for private use or held for fancy trade, wrapping should be resorted to. A layer of ordinary newspaper surrounding an apple prevents it from injury by jarring, rubbing, or slight pressure. It lessens the liability to damage from sudden excesses of heat and cold, in cases where the temperature may be influenced from external sources; it

Ready For Nailing—No. 2.

This shows the pressure being applied and the bar or handle being held in position by being caught in a tooth of the iron rod standing up from the end of the stand. The cover is ready to be nailed on. Notice the manner in which the box is stamped. (These photographs are printed through the courtesy of Mr. Alex. McNeill, Chief of the Dominion Fruit Division.)

checks transpiration, isolates specimens in which rot or scab may appear, and has sufficient influence over the fruit to amply repay for the trouble of wrapping. Where large quantities are stored, however, such a practice would be out of the question.

THE HANDLING OF FRUIT.

Careful handling before storing is the most important phase of the industry. No matter how perfect an apple may be on the parent tree, a slight bruise given when handling and magnified during its storage period very greatly lessens its value when removed from storage. Experiments conducted with Duchess and Tetofski showed clearly the benefit of careful handling. It must be remembered that the low temperature of a storage exerts no "mysterious influence" over fruit. It cannot heal bruised apples nor remove scab or rot. It can, however, check the spread of a disease, or also, the injury caused by a bruise, but these influences are rather over-estimated. If the apple is to leave the storage and reach the consumer in perfect condition it must necessarily enter it in that condition.

The importance of storing as soon as the fruit is picked cannot be too strongly emphasized. It is a very common practice among growers to allow the fruit to remain in "pits" or piles in the orchard, previous to storing it. An experiment was suggested by just such a case. The owner of the apples in question claimed that this delay exerted a considerable influence over the ultimate keeping qualities of the apples. It is easily shown that an apple picked when almost ripe, will, if allowed to remain under ordinary conditions, ripen much more rapidly than if it were allowed to remain on the tree. The effect of severing it greatly accelerates the speed of the changes involved in the maturing process. This being so, the ill effects of piling apples in the orchard are very apparent and an easy explanation is afforded for the behavior of the fruit in the experiment. Not only did the fruit ripen more rapidly, but its maturing was still further quickened by the heat of the ground and by any heat and moisture developed in the pile. Immediate storage after picking is one of the essentials to successful fruit storage.

COMMERCIAL VALUE.

The value of storing early apples for commercial purposes is a most important question. Experiments made indicate that the practice of holding over such an apple as the Duchess for comparatively long periods would be a risky procedure. Such an apple cannot be stored for a much longer period than a month or a month and a half, leaving a reasonable length of time for disposal after removal. The real virtue of the early apple is that it is early. It has no other outstanding points of superiority over the fall varieties, and would stand but a poor chance if brought upon the market in competition with them.

A long storage may not be advisable, but great benefit may be derived from one of shorter duration, especially where the fruit is to be disposed of on local markets. In

eastern Ontario, where the early apple is so widely grown, the crop ripens "all in a heap," as it were, and must be disposed of with due haste before it deteriorates. The grower must content himself with prices which make the handling of such varieties unprofitable. Hundreds of bushels have been sold for as low as 25 cents per bushel simply because a quick sale was imperative. Two or three weeks later similar apples sold at 35 to 50 cents per bushel. The employment of some method of cold storage would have made the delaying of sale possible, and resulted in great gain to the producer.

Actual Co-operation

THE value of cooperation is recognized by the members of the Kootenay Fruit Growers' Association, of Nelson, B. C., which was formed last year and has accomplished excellent work. The objects of the association, as announced in a circular which Secretary Thos. Morley has sent to the fruit growers in the Nelson district are as follows: To encourage the growing of choice fruits and vegetables; to secure to the fruit growers and gardeners of the Kootenay district, who are members of the association, all possible advantages in the marketing of their produce; to create a demand for the produce of the association; to use their combined efforts for the prevention of plant diseases and insect pests; to prevent the importation of infected nursery stock; to collect and distribute information of value to its members; to secure by cooperation the lowest prices on fertilizers, crates, boxes and such other supplies as may be required; to secure lower freight rates, and to expedite the delivery of the produce of its members.

Early this season the secretary issued a circular to the members of the association and enclosed forms which they were to return to him showing the number of berry crates, collapsable berry boxes, plum and cherry baskets and crates, rhubarb crates, pear and apple boxes, etc., they might desire. As soon as the secretary had secured a list from all the members of the supplies they wished, he was able to purchase the supplies more cheaply by getting them in large quantities. Much of the fruit of the association is sold in Winnipeg and the towns and cities of the central west.

Value of Wood Ashes

PROF. F. C. SEARS, WOLFVILLE, N. S.

How heavily should wood ashes be applied in orchards? Will they hurt a growing cover crop, or should they be applied just before turning under? If so, would they not be too late to benefit the existing crop?—(A. J. L., Ontario.

Wood ashes are so variable that it is difficult to answer this question. Analysis of ordinary Canadian hardwood ashes shows about 6.15 per cent. potash and 1.90 per cent. phosphoric acid, while soft wood ashes run little more than half that amount. This, too, is for ashes which have been well taken care of. Ashes as bought on the market run all the way from the percentage given to nothing. I should consider one ton per acre a good dressing. I should not apply them to growing cover crops. Application in the spring before plowing is better. They would benefit that season's crop because much of their fertilizing constituent is immediately soluble.

We Cannot Grow Pears or European plums in this district. I have tried Flemish Beauty and Keiffer, two of the hardiest varieties of pears, and both froze out. In plums I have tried Moore's Arctic, Lombard, Smith's Orleans, Abundance, and many other hardy varieties, but they met the same fate as the pears. I never yet had a good crop of either.—(Dr. McCallum, Smith's Falls, Ont.

A SUCCESSFUL COOPERATION ENTERPRISE

COOPERATION is in the air. The fruit growers of Ontario are alive to the necessity of cooperating more in the handling and marketing of their fruit. This is evidenced by the numerous cooperative associations that are being formed and by the various plans which are every now and then brought forward in an effort to enable fruit growers to obtain more for their crops.

The importance of the subject being thoroughly realized, The Canadian Horticulturist purposes from time to time describing various cooperative movements which are in successful operation among fruit growers. The Niagara District Fruit Growers' Stock Company, Limited, was formed 25 years ago to assist the fruit growers of the Niagara district to market their fruit to better advantage. While this company has had its up and downs, the fact that it has existed all these years and that it has increased in strength is the best evidence that it has been of value to the fruit growers of the Niagara District.

An editorial representative of The Horticulturist recently called at the head office of the company at Grimsby and had a chat with Mr. Murray Pettit, of Winona, the president of the company, and Mr. J. W. G. Nelles, the secretary. "When we started the company," said Mr. Pettit, "it was capitalized at $10,000, but in 1894 we increased the stock to $20,000, the shares being placed at $100 each. We have about 100 shareholders, principally in Lincoln and Wentworth counties, although some live in Essex.

"At the time the company was formed the commission men in the leading cities had the situation practically in their own hands. They were slow in reporting sales and the growers were unable to ascertain what their fruit had realized until two or three months after it had been sold. Our first intention was to send members of the association to the different markets to sell the fruit of the members of the company. An effort was made along this line but was finally given up, partly on account of the short fruit season, which prevented the agents from building up a trade, and partly on account of the competition with the commission men, who had the great advantage of being located in the cities.

"Gradually we changed our methods until finally an arrangement was made with the commission men in the different cities whom we knew to be reliable. We agreed to ship our fruit to these men only, and in return required them to furnish bondsmen every year. These bondsmen we insisted should be worth in their own right from $2,000 to $5,000 each.

"This method has been followed ever since. The commission men deduct the freight rates and charge seven per cent. commission on all sales. The regular commission is 10 per cent., but the commission men are willing to charge us less in view of the fact that they do not require to have agents in the district where our company has shareholders. The company supplies the commission men with agency books. The commission men report directly to the head office at Grimsby after each sale, the price realized daily. They are supposed to report every week and most of them do so, sending the money and a list of the sales."

PROMPT RETURNS.

"I generally receive reports," broke in Mr. Nelles, "on Tuesday. Every shareholder thus has his money by Wednesday. The contracts between the company and the commission men are signed at the beginning of the season. The commission men are given the privilege of handling all the fruit of the company sent to their city, and in return they agree to report to us weekly. The commission man who is slow in making returns runs the danger of losing the agency. We have agents in 26 or 27 cities in Ontario and Quebec. Some years

we have had as many as 34 agencies. About one-third of the cities report daily the price which is being paid and their reports are placed in the hands of the growers."

"Our members," said Mr. Pettit, "are nearly all large shippers. Most of the shareholders in Essex county live near Leamington, Kingsville or Walkerville. All kinds of fruit are handled, starting with early berries. Three per cent. covers the cost of the secretary's expenses, office rent, etc. The growers are sure of receiving the money for their sales as the company guarantees the price.

"We ship for about 300 growers in the different counties. Our business has run from $75,000 to $100,000 per year. While the company is not making money, its financial basis is better than for 15 years."

Among the leading directors of the company are Mr. Murray Pettit, of Winona, president, and Messrs. A. H. Pettit, of Grimsby; Robt. Thompson, W. H. Bunting and Andrew Haines, of St. Catharines.

Likes a Shallow Box

W. V. HOPKINS, BURLINGTON, ONT.

FOR 15 years I have been shipping apples in boxes 12 inches wide and nine inches deep. I have three grades, large and small sound fruit and a number two. I am compelled to have the packing done by women. It is difficult to see well and place apples properly in this box, which is only nine inches deep, and for this reason it is a mistake to have the box deeper.

Twelve inches is rather narrow for two reasons. The larger the surface or face the better the appearance, and in turn the higher the price. A flat box piles better in the storeroom or in a car, and carries better on a wagon.

I always press so as to have a bulge in the centre of the top and bottom and put a cleat on each end to protect this. The boxes should not be piled crosswise, as then the weight comes on the bulged part of the box and the fruit is bruised.

A uniform package is needed, but I hope the new box adopted by Parliament will prove more practical than the standard basket, which is too large for cherries, currants and plums. It is necessary that time be given to dispose of the old stock of boxes before the new law comes in force.

Fruit for Huron County

PROF. H. L. HUTT, O. A. C., GUELPH.

A Huron county correspondent asks for the names of five of the best plums, three cherries and three grapes for his district; also for suggestions as to what are the most rapid growing trees for shade to plant near the dwelling.

I would recommend the following five varieties of plums as most likely to give satisfaction: Burbank, Bradshaw, Imperial Gage, Lombard and Reine Claude. These are given in their order of ripening and cover the season fairly well. In cherries I would recommend Montmorency, Early Richmond, and Windsor. The following varieties of grapes are the best representatives of the three colors, red, white, and black: Lindley, Niagara, and Worden.

The shade trees which make the most rapid growth when young are not always the most satisfactory when old, or do not usually live as long as many of the slower growing trees. The Ash Leaf maple, or as it is sometimes called, the Box Elder, or Nagundo, is one of the most rapid growing shade trees, but it is not nearly so satisfactory after 20 or 25 years as the maple or elm. The soft maple is another rapid grower, and either of these may be planted for immediate effect, but I prefer to plant white elm or hard maple if soil is suitable, and wait a little longer for results.

Judging Fruit*

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

IN judging fruit one of the first defects to be looked for are blemishes. No fruit should be exhibited in competition for prizes that has a worm hole, bruise, spot or any other blemish unless it is impossible to get a specimen without such, or unless the blemish is very small and the fruit perfect in every other respect.

The uniformity of the specimens is equally as important as the freedom from blemishes. Irregularity is never attractive in fruit, and the specimen which attracts the eye on the dining table, in the shop window, and in the barrel or box is the specimen which approaches nearest the typical shape of the variety in question. Furthermore, the irregularity of one specimen gives an uneven appearance to the whole, and particularly is this the case when there are only five apples together.

High color is as desirable as uniformity, and it is difficult to decide just how far from perfect uniformity, highly colored fruit may be and yet score as high as a perfectly uniform plate with only fairly colored fruit. It is sometimes puzzling to the exhibitor to know just why a plate of apples receives a prize; but all these points are carefully weighed by the judge.

The time when size was considered the first essential in exhibition fruit has passed away, at least with the best judges, and large size is only preferred when the specimens are uniform, highly colored and free from blemishes, and equal in every other respect to those a little smaller. Apples which are of good size for the variety, and perfect in every other respect, will stand the best chance for first prize, as it is difficult to get large specimens which are as highly colored and as perfect as those a little smaller.

There is also a certain undefinable thing called "finish" about an apple which is regarded by the judge. This may be explained, in part, by a clearness of skin and a thorough maturity of the fruit. No better evidence could be given of the stability of the soil and the care in growing the fruit than the finish which the fruit has.

When comparing different varieties, quality, of course, should and does receive due consideration; especially is this the case when judging collections of fruit. In judging collections, however, the value of the varieties shown from a commercial as well as a dessert standpoint receives attention.

*Extract from an address delivered at the last annual convention of the Prince Edward Island Fruit Growers' Association.

John M. Fisk

John Manson Fisk, President of the Quebec Pomological Society for 1905, was born at Abbotsford, P. Q., Dec. 13, 1836. As a boy he developed a taste for horticultural pursuits by sowing apple seeds and planting trees, andl after coming into possession of his father's farm, established a nursery, where many varieties of apples, pears and plums were tested, the trees from which now form the nucleus of many a commercial orchard in his native province. He was one of the originators of the Abbotsford Fruit Growers' Association, firmed in 1874, and which published the first fruit list for the province of Quebec in 1875, and ever since has been one ot its leading members. The Pomological and Fruit Growing Society of the Province of Quebec was organized at Abbotsford in 1894, by representatives from different parts of the province, at which Mr. Fisk was elected its first president. Each year since he has taken an active part in the work of the society.

Undersized Baldwin Apples

"A GREAT many orchards, especially those in which Baldwin apples are being grown, are producing undersized fruit," said Mr. Joseph Tweddle to an editorial representative of The Horticulturist. "The question," continued Mr. Tweddle, "is what is the cause? Several years ago I was handling 10 or 12 orchards on shares. For two or three years parts of them bore some fruit, which was off in color and small sized, while others produced fruit of normal size and fair color. The trees in all the orchards were sprayed in the same manner.

"I found that the orchards which were in cultivation during the winter of 1878 and 1879, when so many peach and plum orchards and vineyards were destroyed by root freezing, were the ones which bore the small sized off-colored fruit. Those which were in sod that winter escaped the root killing and bore medium sized well colored fruit. When I found this out I commenced heading in severely the orchards which were root killed, and they immediately responded by vigorous growth. In my opinion that is what is the matter with many poor orchards. I now grow crimson clover and rye and vetch, and after it has served its purpose as a winter cover it is plowed under for a supply of nitrogen and humus. Some kind of crop is sowed every year for this purpose.

A Plum and Cherry Disease

T. D. JARVIS, B. S. A., O. A. C., GUELPH.

Something has happened to many cherry and some plum trees in this section. The leaves turn yellow and have brown or blackish spots on them. They finally fall off. I understand it is a fungous disease that is the trouble. What is the remedy ?—(E. C., Essex Co.

The fungous disease attacking the plum and cherry leaves is popularly known as the Shot Hole Fungus. It does considerable injury each year to the plum and cherry trees of Ontario. If the trees are sprayed in the early season with Bordeaux mixture it will reduce the disease considerably.

Wanted—A Fruit Commissioner

THAT leading fruitmen feel strongly regarding the action of the Dominion Government in placing the fruit division under the supervision of the Dairy Commissioner is shown by many forcible letters and expressions of opinion on the subject which continue to reach The Horticulturist. Here are two:

A. E. Sherrington, manager Bruce Fruit Growers' Association: Owing to the vast importance of the fruit industry, I believe that it is absolutely necessary that it should have a commissioner of fruit, who shall be entirely separate and distinct from the dairy division and who shall have entire charge of the fruit branch of the Dominion department of agriculture. It is important that we shall have a fruit commissioner through whom we will be able to come in direct touch with the Minister of Agriculture, which is impossible at present, owing to its being necessary for the chief of the fruit division to consult with the dairy commissioner in regard to all matters concerning the fruit industry. We should push this matter until our desires are complied with.

D. Johnson, president and manager Forest Fruit Growers' Association: The action of the Dominion Minister of Agriculture in placing the chief of the fruit division under the control of the dairy commissioner places the former in an awkward position. It seems to me that if the chief of the fruit division was brought in direct contact with the minister he would be able to do more for the advancement of the fruit industry, which is in a discouraged condition. The large quantities of fruit which go to waste every year show the great need of something being done to improve the fruit industry.

Other industries have been helped by the Dominion department of agriculture, and many of them have been put on a paying basis. The fruit industry with all its possibilities is being neglected as is shown by the action of the Minister in refusing to give the fruit interests a special commissioner. I am in favor of fruit growers uniting and demanding that the government give them a commissioner of their own and thereby recognize the great possibilities of the fruit industry.

Soot as a Fertilizer

PROF. R. HARCOURT, O. A. C., GUELPH.

What is the best way of using soot as a fertilizer? Should it be scattered on the ground or mixed with water and applied as a liquid?—(J. G. Goble, Woodstock, Ont.

Soot owes its value to the presence of a small and variable quantity of ammonia salts. The best house soots do not contain more than about 3.5 per cent. of nitrogen. They do not contain any appreciable quantity of potash or phosphoric acid. As there is such a small amount of fertilizing constituent in the soot, it would not pay to mix it with water and use it as a liquid.

All that is necessary is to sow it broadcast on the ground as a top dressing. It would possibly give its best results on grains, sown after the growth commences in the spring. I do not think it is rich enough in nitrogen to be an efficient manure for the horticulturist.

Direct Shipments

A LEADING Canadian fruit grower of the Hamilton district, who has recently returned from Great Britain, states that a number of the large wholesale commission firms in Great Britain are becoming disgusted with the auction sale method of purchasing their supplies of fruit, which is now followed in Great Britain. Several of these firms are anxious to get in touch with leading Canadian growers and with our cooperative apple growers' associations, that they may arrange for direct shipments of apples and other fruit. Two of the firms mentioned are those of Veitch, Moyer and Erskine, of Edinburgh, and Watson & Co., of Aberdeen, Scotland.

Firms like these claim that when they buy their fruit by auction they are unable often to select the kind of fruit they want or fruit that is packed in the way they would like They believe that if they can arrange with large Canadian shippers they will be able to obtain the fruit they would like. Some of these firms intend to send buyers to Canada.

Insects on Larch and Honeysuckle

TENNYSON D. JARVIS, B.S.A., O.A.C., GUELPH.

My larch trees are being attacked by some greenish caterpillar. These caterpillars are very numerous and in clusters. Many of the needles have a white downy substance on them. Some small insects, some of which have wings and some without wings, appear in white clusters on my bush honeysuckle. What are the insects which cause the trouble and the best methods of combatting them?—(D. M., Peel County.

The larvae that is attacking the larch trees is the Larch Saw Fly (Nematus erichsonii). I would advise spraying the trees with Paris green solution (Paris green four ounces and water 40 gallons). The white sticky substance to which you refer is likely the Larch Chermes, a very small insect common on the larch. This insect has a sucking mouth, and should be sprayed with kerosene emulsion. The clusters of insects on your honeysuckles are plant lice. These insects have sucking mouths and should also be sprayed with kerosene emulsion.

Spraying is an absolute necessity in order to attain success, and is very remunerative in return for the outlay required to make a thorough job of it. The question is how to get it done with the help at hand and keep up with other work. Power sprayers have appeared on the scene to solve this problem. —(W. H. Brand, Vinemount, Ont.

MARKETING SMALL FRUIT

IT is a season such as we have this year which tests the grower of small fruits. Many growers find little trouble in so caring for their bushes and cultivating their land that a fair crop results each year if the weather conditions are not too unfavorable. As a rule it is not difficult to find a ready market if the crop is not very heavy. But when a bumper crop comes the business ability of the grower is put to the test and that grower who is the shrewdest and pays the most attention to supply and demand on the different markets usually obtains greatest returns for his labors.

An attempt has been made by The Horticulturist to find out how some of the leading growers in the Niagara district sell their crops and from what markets the greatest profits are obtained.

"This year," said Mr. J. A. Pettit, of Grimsby, "there was good money in the home market for strawberries. I always sell my fruit to local buyers unless it is evident they are not paying enough. I also ship some. The Ottawa market suits me best, because it is handy to ship by Dominion express from here. I seldom sell to the canners and never make a contract with them. This year the canners have paid $1.32 per crate, but when they contract for many crates from certain growers they do not always get the best berries as the growers can make more money out of the best on the local market or perhaps by shipping them."

CANNERS PAY BEST.

"Selling berries to the canners," said Mr. J. W. S. Nelles, of Grimsby, "pays best all through. Many growers claim otherwise, but 'a bird in the hand is worth two in the bush.' In many cases if they ship to a distant market they are not sure what price they may get. Many buyers here have bought whole patches to ship. It will not be long until the buying will all be done at the growing point."

"For the Marlboro raspberry," said Mr. W. H. Spera, of Bartonville, "I find best money in selling on the Hamilton market. It comes in early and demands a high price. Sometimes I ship to Ottawa or Montreal if I find localities better located for supplying those cities have not a sufficient crop. As a rule, however, the home market pays best. There is more work, however, about supplying the home market, as when the berries are shipped all that is necessary is safe delivery to the train. The Cuthbert is firmer and a better canner and greater returns are obtained by selling it to the canners, as this variety comes in after the earlier varieties have lowered the price on the open markets.

MONEY IN CURRANTS.

"My land," continued Mr. Spera, "is specially suited to growing currants. I usually sell the red currants in Hamilton at about $1.75 per crate, but if the demand is not good there I look for other markets. I have shipped direct to Buffalo, and after paying freight and a duty of one cent per box, besides commission merchant's fees, have cleared over $1.75 per crate. Black currants generally bring 90 cents to $1 per 11-quart basket. For me the canning factory in Hamilton pays best because I have a big lot to sell. On the local markets a higher price might be obtained, but only 10 to 12 baskets could be disposed of at a time."

A great deal of fertilizer can be profitably used on strawberry plants if applied at proper intervals, as follows: In the early spring before planting, again late in the summer or early fall around the plants, and again in the winter or very early spring directly over them.

What interests me most in The Horticulturist is the names of the different kinds of fruit that do well in latitudes similar to Owen Sound. These articles are a far better guide in selecting fruit trees or plants than the fruit agent with his picture book. —(John Thomson, Owen Sound, Ont.

HARD TO GET PICKERS

GROWERS of small fruit generally find considerable difficulty each year in handling the crop. This is the case in most sections this season. The trouble was not very great with the strawberry crop, which was light in many districts, but now the respberries are in the trouble has begun. Growers have to use different methods to secure pickers, and many of these methods are far from satisfactory.

While talking to a representative of The Canadian Horticulturist who visited his place recently, Mr. W. Walker, of Grimsby, said: "It is very difficult to get pickers—in fact, we can't get good ones. Some growers bring in Indians from Caledonia, but perhaps they only stay at one place for a day or so. They are unsettled and sometimes other growers coax them away. I hope to get all my crop harvested without experiencing any serious loss, as I have the promise of about 40 pickers for odd days.

"The cost of harvesting a crop of berries often comes pretty high. We have to supply shanties or cottages for them after paying their fares on the train or car. Of course they board themselves. Some growers give a reliable woman 50 cents a day extra to oversee the job and secure pickers. The usual price paid for picking ranges from one cent to a cent and a half per box, depending on the variety."

"We simply have to do the best we can in getting pickers," said Mr. J. M. Metcalf, of Grimsby. "We can get a few from surrounding villages. A good plan is to go back on the mountain and bring down a load of farmers to help out. We pay one and a half cents per box for picking black and red raspberries and one cent for thimble berries."

"It is going to be a serious problem," said Mr. E. D. Smith, of Winona, "to get pickers this season. It is now some years since we had a heavy crop of raspberries. I suppose the best plan will be to make contracts for the berry season with a number of Indians from the reserve."

STRAWBERRIES FOR THE WEST

ONTARIO strawberry growers, it is the conviction of Mr. Alex. McNeill, chief of the Dominion fruit division, who has recently returned from a trip to the Pacific coast, will have to use more care in the growing and shipment of their fruit if they ever expect to build up a profitable trade with Winnipeg and western points. "When I was in Winnipeg in July," said Mr. McNeill to The Horticulturist, "strawberries from points in British Columbia were meeting with a ready sale. I asked one of the commission dealers how it was he did not sell Ontario fruit, and found he was a man with a grievance as far as Ontario fruit was concerned.

"This merchant informed me that he had ordered a car of Ontario berries to be delivered on Thursday, July 29. He showed me a telegram he had received stating that the fruit would not be delivered to him until Friday, and another telegram stating it would not reach him until Saturday, and finally a third telegram stating that the Ontario shipper would not be able to let him have the fruit at all. This promise to ship the fruit and the breaking of it had caused the merchant great loss, as he had relied upon receiving this car of fruit to fill his local demand and had been putting off his customers in expectation of the arrival of the fruit.

"I presume that the trouble with the Ontario shipper," continued Mr. McNeill, "was that he was unable to make proper arrangements for securing the fruit. The trouble in Ontario is that very little fruit is grown for export, as all that is shipped to

the west is what little surplus is left over after the Ontario and Montreal demand is supplied. In Nelson, B. C., one grower is able to supply the local demand, with the result that all the other growers in that section bend their energies to filling the demand for the Winnipeg market and other cities in Manitoba and the Territories.

"Ontario growers might be growing three times as many berries as they do, but as long as they oscillate between the local and distant markets, without bending their energies to developing a profitable trade exclusively with one or the other it will be impossible for them to work up a first-class trade with the west. If they are going to work up such a trade it means that they must keep their business engagements, even if it sometimes means a loss to them to do so, as otherwise the buyers in the west will not have confidence in them and will be slow to give them orders.

"Ontario growers will have, also, to raise the varieties that will prove the best sellers, and pick and pack these berries especially for shipment. Only by definite work of this kind will they be able to compete with the British Columbia growers. One failure to fill an order has a worse effect with a buyer than even a shipment of poor fruit, as a small amount of poor fruit can be sold, if necessary, at a lower price, while if no berries are shipped at all the buyer is left in a bad position. When I was in Winnipeg British Columbia fruit growers were receiving $2 net per case for their berries."

LONDON PARKS

FOR a city of 40,000 inhabitants London is fairly well supplied with parks. The greatest need in the future will be small play grounds for the children. There is a movement on foot, inaugurated by Ex-Mayor Beck, to acquire small areas in different parts of the city to be laid out as playgrounds for children, so that we hope to have this need filled also.

VICTORIA PARK.

Within three blocks of the center of the city Victoria park is located. It has an

Flower Bed in Victoria Park, London, Ont.

abundance of trees, in fact almost too many. Its area is about 16 acres. Being easy of access, it is a favorite resort in the evenings and on Sunday afternoons and evenings. Very slight improvements had been made for many years till the season of 1904. In October, 1903, the city appointed J. S. Pearce parks superintendent, giving him full control and supervision of all the city parks, together with the trees on the streets and boulevards throughout the whole city. He was also given full authority to prune, cut down, or trim out any trees that were unsightly or out of place. Under his direction a vast improvement has been made. Some 1,600 trees were marked by him a year ago last winter. Nearly all these have since been cut down. The work was done by people out of employment and cost the city but little.

The new superintendent laid plans for a number of alterations in this park. The band stand was moved to a more suitable place. A larger flower bed was made near the center of the park. Some trees were cut out. Much of the old shrubbery was cleaned up or cut out and many of the flower beds were rearranged. These changes have so improved the appearance of the park as to cause the most favorable comment. The next step was to plant a lot of new shrubs, trees and perennials. The general appearance of the park can be judged from the cuts reproduced from photos taken during the cummer of 1904.

QUEEN'S PARK.

This park has been cleaned up and put in good order. Beds of flowers and shrubs have been planted. Further improvements have been made this year. A number of small plots have been cleaned up and trees and flowers have been planted.

SPRINGBANK PARK.

This park is situated four miles down the river at the city waterworks, and contains some 300 acres. It is beautifully situated, with hill and valley, stream and forest. It is a favorite resort in the afternoons and evenings during the summer months. It is under the control and management of the Water Commissioners, who are gradually improving it. The street railway have a double track into the grounds. Nature has done so much toward making this a

Greenhouse and Surroundings, Victoria Park, London, Ont.

park that man has only to clear the way, make roads and plant flowers.

The number of flowers and shrubs that can be used for park purposes is almost unlimited. Much depends on the locality, the size of the park, and other conditions. This should be left to the taste and judgment of the superintendent. For solid, bold effect nothing equals geraniums and cannas. A great deal depends on the location of the beds, their size, the arrangement of colors of bloom, foliage, etc. The success and appearance of beds, shrubbery, etc., depends altogether on the good taste and judgment of the superintendent or city gardener.

TROPICAL PLANTS WITHOUT A GREENHOUSE

HORTICULTURAL enthusiasts in different lines take great pride in producing something extraordinary. The orchardist frequently prides himself in having one tree bear many different kinds of fruit. The market gardener, by use of hot beds or greenhouses, thinks he has done well if he catches the early market and big prices with his cucumbers or tomatoes. Florists with their huge greenhouses filled with the latest heating appliances, rejoice if they mature some of the tropical fruits. But for genuine enthusiasm in plant growing the work of Mr. Walter T. Ross, secretary of the Picton Horticultural Society, shows something positively beyond the hopes of an ordinary horticulturist.

Without the aid of any extra heat except what he has in his house and cellar, Mr. Ross has grown with success numerous tropical plants. It would take too much space to enumerate them all. A representative of The Canadian Horticulturist, who called on Mr. Ross recently, saw a typewritten list of plants, which filled three or four pages.

"The last two or three seasons," said Mr. Ross to The Horticulturist, "have been poor ones for work with tropical plants. It needs a very warm summer to ensure success. It is no more difficult to grow tropical plants than any other kind. The only extra care that is required is to protect them from frost. Conditions as near as possible to their natural conditions in the south must be maintained. The greatest trouble I have is with the fruit falling off when it is quite small. Too much moisture or too much drought causes that.

"Those are my fig trees," said Mr. Ross, as he pointed to four fine healthy specimens in a row in his garden. "I always kept them in my cellar in tubs until last winter, but I thought I would try covering them outside. They were buried three or four feet deep and then brush was piled on top to hold the snow. When I took them out early in May they were quite healthy. The experiment was a success. I have four varieties which produce fruit of different sizes. There is no apparent flower but one fig comes in the axil of a leaf. I have promise of a fair fig crop this season," remarked Mr. Ross, as he pointed to numerous miniature fruits just forming.

"I handle the pomegranate in the same way," continued Mr. Ross. "The wood is soft like basswood and can be bent down readily when covering for winter protection.

"Sweet potatoes are also grown, as you will see by these vines. The young plants are secured from the south and set out in my garden when about five inches high. The potatoes are larger and whiter than the ones we buy in the stores and the flesh is firm and very white.

"Peanuts are easily grown. I plant the nuts in sandy soil. As the plants grow yellow blossoms appear low down on the stem. I pull the earth up around them

gradually covering the blossoms and thus developing the peanuts underground. They need a warm sheltered place."

A Fig Tree Grown in Canada

One of the fig trees, seven or eight years old, grown by Mr. Walter T. Ross, of Picton Ont., is here shown. There are about five dozen figs on the tree. The variety is the Celestial or Sugar Fig.

Besides these Mr. Ross matures lemons and oranges and has some large specimens in preservatives which are better than most of the specimens of those fruits which appear in the shop windows of our towns and cities. A fine coffee plant stands in his office window and is as nice an ornamental plant as could be desired. Several curiosities in the form of carnivorous plants, known as Venus Fly Trap, which catch flies, are also very interesting. ThePapaw Tree, which has the property of rendering flesh tender, is also grown with success.

Among the many specimens not yet mentioned are pineapple, persimmon, ginger, cinnamon, vanilla plant and tapioca.

"I have never had a greenhouse," concluded Mr. Ross, "but there is an old saying that 'Nothing succeeds like success,' and perhaps my success on the start was the cause of my attempting so much. I always study the plant and find what conditions suit best. If I had a greenhouse I believe I could mature almost any of the tropical fruits."

When such success has been attained without glass structures what should we expect from some of our up-to-date amateurs and florists with their huge houses and perfect systems of regulating heat and moisture. Even the most sceptical would become an enthusiastic lover of plants after spending a half hour with Mr. Ross.

AN AMATEUR'S EXPERIENCE WITH TREE PEONIES*

THE Tree Peony (Peonia moutan) is found wild in China and Japan and attains in its native haunts a height of 40 feet. The appearance of a tree of this size, covered in the early spring with thousands of enormous single flowers of a faint rose lilac color, is surpassed in beauty only by the great magnolia of the Southern States. So remarkable a flowering tree must have attracted the attention of Chinese and Japanese gardeners. In the Flowery Kingdom the Tree Peony is called the King of Flowers. It is said to have been cultivated there for more than 15 centuries, and plants of choice varieties sold for more than their weight in gold. The first Jesuit missionaries who visited China sent plants to Europe, which attracted immediate attention and attained great vogue. Those who planned the stately gardens of France, which are now the delight and despair of new world visitors, contended for the dis-

*A paper read at the July meeting of the Ottawa Horticultural Society by Hon. R. R. Latchford, of Ottawa, who has been very successful in the growing of these beautiful and rare flowers.

tinction of possessing a specimen of the tree peony, and plants were sold at 100 louis each. It does not appear to have reached England until the close of the eighteenth century, when it was imported from Canton by Sir Joseph Banks.

The continental gardeners greatly improved the type, and the Chinese varieties and some of the forms produced by Seneclause, Mouchelet and others are not surpassed by the most superb productions of modern nurseries. The opening up of commercial relations between the western world and Japan about 50 years ago, gave a new impetus to the cultivation of the flower. The Japanese gardeners had been quick to take advantage of the tendencies to variation which this flower manifests in cultivation, and had produced hundreds of forms, the best of which they ingeniously propagated. Those brought to England and the continent in the forms most favored were the single and semi-double varieties. They were brought to Europe in great numbers and when crossed with the older importations from China produced seedlings, the best of which have been selected by careful growers and are now available at reasonable prices.

In England a special impetus has been given to the cultivation of the flower by Messrs. Kelway & Sons. By intelligently directed crossing and selection they have produced varieties equalling, if not surpassing, the finest productions of continental growers. They catalogue upwards of 300 varieties, and while among these many eastern forms doubtless masquerade under new names, and others appear that are not any great improvement upon the older varieties, yet it must be conceded that many of Kelway's productions are veritable novelties of the highest merit.

The nurseries at Rochester, New York, many years ago distributed tree peonies of French origin. A plant there obtained

Tree Peony, Yukiarashi (Snow Storm)

From the Tokio Nursery Co. Enormous blooms nearly a foot in diameter. The most delicate silvery-white petals, tossing in lovely confusion; anthers bright gold. A flower of exquisite beauty and purity.

was long a striking and beautiful object on the lawn of the late H. L. Loucks, in Wellington street, Ottawa, immediately adjoining the VanCourtland property. Its size and period of flowering—weeks in advance of the ordinary peony—attracted my attention, and annually when the plant was blooming I visited the garden to admire it. Mr. Loucks told me that he had no difficulty in bringing it through the winter. He simply inverted over it an empty barrel or packing case. When moving to a new house where he could no longer enjoy the delight of growing a few flowers he gave me the pride of his garden. I cut it back and divided it. One of the plants, now upwards of four feet in height and of equal diameter bore during May more than 150 enormous blooms. Roots purchased in Japan six years ago at trifling cost have bloomed profusely during the last two years, producing flowers of varied colors

Tree Peony, Kimomanotzuki—Moon-Peeping-Out-of-the-Clouds.

Typical of the single Japanese varieties. Rich glowing purple petals; bright yellow antlers.

from the most delicate satiny white through shades of pink, rose and crimson to the deepest purple.

The Japanese names are most fanciful and poetic. When preserved, as they should be, they add much to the charm of the flower. The finest white I have, a semi-double, rejoices in a name which translated is said to mean "Snow-storm." One bloom of this plant was by actual measurement 11¼ inches in diameter. Its size and the indescribable sheen and beauty of its petals contrasting admirably with the golden stamens combined to render it the finest flower without exception that I ever saw. A deep purple single flower variety is called "Moon Peeping Out of the Clouds." Other examples of Japanese names are: "White Lion in a Fury," "The Seven Gods of Happiness," "Snow Clad Fuji."

Any soil suits the tree peony, but of course it responds to generous treatment. The roots are very long and the plant is a gross feeder. The soil should, therefore, be deep and rich, and kept enriched by top dressings dug into the soil from time to time. It loves water, and copious drenchings before and during the flowering season will be amply repaid by increased size and substance in the flowers.

The only pruning necessary is to cut off the dead blooms and give shape to varieties inclined to be straggling. With ample room, however, the tree peony is naturally a symmetrical plant and requires but slight trimming. As the flowers are formed from the buds produced in the preceding year, the little pruning necessary should be done as soon as the blossoms fall. To prune in early spring will prevent any bloom during that season, and to prune late means simply the removal of the flowering buds. Propagation is usually effected by grafting in the spring on the roots of the herbaceous peony. They may also be propagated by division, though this is not advisable, as the plants dislike being disturbed, and by layering, which is comparatively easy. Regard must be had in putting down layers to the brittle nature of the wood, and great care is consequently necessary in bending down the shoot intended to produce a new plant. The season of blooming is coincident with the old-fashioned peony, *P. officinalisis,* and precedes by nearly two weeks the not less gorgeous *P. sinensis,* which are the pride of our gardens in early June.

The tree peony may be as easily grown in Canada and Eastern Ontario as the herbaceous varieties. It is equally hardy if given close and dry protection. It may be had cheaply, and in almost infinite variety. It is magnificent in foliage and flower, yet it is unknown except in a few gardens. In the hope that it may be more widely grown and add to the delights that flower lovers alone know, I have ventured to bring it specially to the notice of the Ottawa Horticultural Society.

CHRYSANTHEMUMS IN AUGUST

GEO. HOLLIS, BRACONDALE, ONT.

THE month of August is a busy one for chrysanthemum growers, especially for those who raise the early varieties, such as Fitzwigram, Bergman, Monravia, Kalb and Opah. The buds of these early sorts can be taken after August 12. These early buds are crown buds, and it is a good plan, when putting the growths out, to leave one shoot beside the bud for a day or two to draw the sap up and make the bud plump. Should the bud not swell you will then have another chance.

Wires running the length of the bench, in a line with each row of plants, and a string from top to bottom for each plant, the string being given a twist around the growths, make a good support for single stemmed plants.

Keep the benches free from weeds and the plants well syringed with tobacco water for insect pests. If fumigation is practiced do not overdo it, as the leaves burn very easily. Give manure water once a week, as recommended last month, but a little stronger for the early varieties. Pot plants outside should be well watched for the chrysanthemum fly, which makes its appearance this month. If the plants are stung by the fly you will have only one sided flowers. Cover the plants with cheese cloth, or take them inside. Tobacco smoke keeps them away.

A TORONTO ROSE GROWER'S METHODS

AN unusual method of growing roses in the greenhouse is followed by Mr. A. J. Frost, of Preston avenue, Toronto, who, instead of renewing his stock every two or three years, as most growers do, has not renewed his stock for over 10 years.

"It is so long since I started any young roses in my greenhouse," said Mr. Frost to a representative of The Canadian Horticulturist, "that I scarcely know how frequently I change my stock. What I have now have not been changed since 1893. They were planted in 1892 and then replanted to where they now stand in July, 1893. The bloom was excellent that season, and during exhibition weeks I cut 400 to 500 per day. They have been just as good ever since, and I intend to leave them as they are just as long as they yield me as great returns as they have done each year.

"I have bloom to cut the whole year round," continued Mr. Frost. "When the other growers are setting out new stock I cut 50 to 100 off two benches each 110 feet long. The profit from the same bench space in 12 months is almost double that obtained from methods of rose culture commonly employed. I cut 25 to 30 per cent. more bloom and have it at all seasons. Of course, naturally, they do not bloom so freely during the winter months.

The chief trouble in growing roses is the regulation of soil and air temperatures. With the solid bed the soil temperature very frequently goes much higher than the temperature of the atmosphere. This causes rapid growth of the roots, but the stem growth is checked. I now aim to have the temperature of the soil practically the same as that of the air in the house. A temperature of 58 to 60 degrees in winter gives the best results. To have the air temperature slightly higher is not objectionable. Instead of that, however, many growers have the soil temperature much higher. Low temperature gives high quality of bloom but short stems and low quantity.

"Before I started into business for myself I decided that florists did not use the most economical methods in growing roses. I thought that since out-door roses did not need to be renewed each season, those

Greenhouse in Which Mr. Frost Grows Some of His Roses

grown in the greenhouse should do well when treated in the same way. I have tested this method for 13 years and shall not go back to the old way."

"What do you do with the old wood?" was asked. "Every third year," replied Mr. Frost, "I go through and cut out all but the strong young shoots. This leaves a healthy bed of young plants which keep on blooming. I usually do the pruning in July, but last year I pruned one bench in January when the crop was off, and it did as well as others pruned in the summer.

"The work connected with rose growing in this way is very light. Each year in July I add about one inch of cow manure and a moderate dressing of bone meal. Then there is the usual work which is needed in caring for benches. My experience," concluded Mr. Frost, "has taught me that it is wise to leave a crop as long as it is paying well. These roses will stay as they are until I see they have ceased to bring handsome returns."

CANNING SITUATION IN PRINCE EDWARD COUNTY

IN Prince Edward County, Ontario, a great number of the tillers of the soil depend on truck farming for a livelihood. Perhaps more canned goods are put up in this county than in any other county in the province. Prince Edward growers supply the raw material for nine factories, all located within the borders of that county. They also furnish the greater portion of what is canned in two factories just outside the limits of the county. The fact that four new factories have been built within the last two years gives some idea of the increasing importance of the canning industry to the growers.

"In Prince Edward county," said Mr. Wellington Boulter, of Boulter & Sons, Picton, to The Horticulturist, "the total value of goods canned each year amounts to somewhere in the neighborhood of $1,000,000. Of course it depends on what Nature gives the grower."

"There has been a marked increase in the number of acres devoted to truck gardening this season," said Mr. Earl Spencer, of Picton. "This increase is to supply the new factories which are going up. The acreage of canned stuff has doubled in the last few years."

"The old factories are holding their own growers," said Mr. J. E. Terrill, of Picton, "and the four new factories which have started within two years back are being supplied by new growers."

"It is hard to estimate the total number of farmers who supply the raw material for

these factories," said Mr. A. H. Baker, manager of The Old Homestead Canning Co., of Picton. "We have made contracts with 118 pea growers alone. Each of the nine factories would easily average over 100 growers. The number of acres grown is increasing rapidly each year. The producers are more numerous and the old growers are supplying more than they did."

With such a large percentage of the rural population engaged in this work it is not surprising that the situation between growers and the canners combine, as elsewhere in Ontario, should be somewhat acute. Information gathered by a representative of The Canadian Horticulturist who visited that county recently shows clearly the conditions existing. The majority of the factories are in the Canners' Combine, which syndicate has huge factories in different parts of Ontario. Some of the factories are independent concerns, who have been having an up-hill fight against the combine. The agitation for 30 cents per bushel for tomatoes and the refusal of the combine to pay that price augmented the already strained conditions.

"In districts where the combine has opposition," said Mr. Baker, "they raise the price so as to out-do the independent factories, but in sections where there is no independent factory they pull the price down to make up for the extra price paid in the other sections. Where the independent factories pay five cents per box for berries the combine go around and offer six cents, while in another section, without opposition, they refuse to pay more than three and three-quarter cents. In this way they try to whip the independent factories into their camp. Last year there was a surplus of peas and the combine lowered the price until it scarcely paid for production. While we may lose a little they lose a whole lot. They will have to repeat these practices many times, however, before they will be able to put the independent factories out of business."

FACTORY OF THEIR OWN.

In the Bloomfield district the refusal of the combine to pay 30 cents per bushel for tomatoes caused a number of the leading growers to take decided action.

"During the past five years," said Mr. J. W. Hyatt, of West Lake, "the canners' combine have practically controlled the canning industry. They control the production of raw material and the manufactured product. Of late they have been controlling the price as well.

"Farmers should be only farmers. They should not be millers nor canners. But the cost of labor has increased 25 to 50 per cent. and growers should receive more for the raw material than they have been getting. The canners refuse to give more. What will be done if we surrender? Next year they may lower the price. The longer we wait the worse off we will be.

"After considering this important question carefully," continued Mr. Hyatt, "the growers around Bloomfield decided that their interests would be served best by forming a cooperative company. As a result The Farmers' Canning Company, Limited, of Bloomfield, has been organized. A number one factory with first-class equipment and a capacity of 20,000 cans per day is being built. This year we will can our own tomatoes and corn.

"Tomatoes grown in Prince Edward county are unequalled for quality and flavor. We were dissatisfied because many tomatoes of poorer quality and flavor grown in other sections of the province were being branded with the Prince Edward county brand. The same is true of peas. Prince Edward peas are unexcelled. The syndicates in many instances put up inferior goods which hurt Canada in regard to the canned goods trade. Many growers saw that truck farming was about to be ruined.

This was another reason for our determination to have a factory of our own.

"It has been reported that the syndicates will sell below cost and so put us out of business. But The Farmers' Canning Company is composed of about 40 shareholders who are growing the raw material, and we can hold back our goods for five years, if necessary, until a paying price can be obtained. We are going to put up only the best and work back to the old standard," concluded Mr. Hyatt.

"The farmers were late in starting the agitation for 30 cents per bushel for tomatoes this season," said Mr. Spencer. "Next year they will be able to get the 30 cents all right, but they will have to supply a better quality of goods. Canners now contract for the crop at 250 bushels per acre if they want them. In case they don't want them the farmer is left to do whatever he likes with the crop. When the crop is light everything is all right."

"We can not afford to pay more than 25 cents per bushel," said Mr. Baker, "unless all the factories do the same. But there is no crop on the farm pays so well as a crop of tomatoes at 25 cents. An average crop is 250 bushels per acre, and very frequently they run two or three times that much. Last year one man had 800 bushels and that was in an unfavorable season.

"The natural feeling among the growers is that a higher price should be obtained, but an average season gives them returns far above mixed farming or dairying. If the price is raised for the raw material the next move will be a higher price to the consumer and smaller sales as a consequence."

GROWING EARLY VEGETABLES IN ESSEX COUNTY

THE forcing of vegetables for the early markets and their growth for canning purposes is rapidly becoming a very important industry in Essex county, Ontario, especially in the Leamington district. Thousands of dollars are being invested in greenhouses and in the other equipment required. Most of the people growing vegetables were extensive fruit growers until the last few years. The severe winter of 1903-4 which destroyed many orchards in this section forced many of the growers to turn to vegetable growing. In this they have been so successful the acreage has been steadily increased, although some of the growers are again turning their attention to fruit growing.

A grower who has invested a large amount of money in the growing of vegetables is Mr. J. D. Fraser, of Leamington, with whom The Horticulturist recently had an interesting interview.

"Owing to the freeze out in my peach orchard twice within four years," said Mr. Fraser, "I have been compelled to enter rather more largely than I should otherwise have done into the growing of tomatoes, musk melons, cucumbers, and other vegetables. I still hope, however, to make a success of peach growing, as I firmly believe, apart from the above danger, that this section is second to none for producing this particular fruit. The tops of the trees do not get frozen, only the roots. This has been due to an insufficient covering of snow, as is shown by the fact that after the damage had been done by the frost the trees came out in leaf and bloom and then wilted away.

"For many years previous to the winter of 1899-1900 peaches were grown here very successfully with clean cultivation. After the loss caused by the cold weather of that winter we practised clean cultivation together with a cover crop sown in July or early August, but could not get anything

to form a sufficient protection to take the place of the snow.

"In the winter of 1903-1904 many of the orchards that had been replanted were again frozen. In sections of the United States where they have had the same difficulty to contend with, they are using a coarse mulch applied directly to each tree. We are now planting our new orchards 16 by 24 feet apart, and with this plan hope to work a strip in the centre of 10 or 12 feet in width, keeping a sufficiently heavy mulch on the balance to hold the moisture. This, in connection with the heavy cover crop on the cultivated strip, that nearly always grows rankly at a distance from the trees, ought to afford ample protection. I hope in the future to work vegetables in with my fruit growing rather more than I have hitherto done, and under the foregoing conditions expect to make fruit as profitable as vegetables.

"We grow tomatoes chiefly, also cucumbers and musk melons. This year, aside from growing the supply for our own needs, our growers had over 250,000 tomato plants under contract for canning factory purposes. These were transplanted but once. My own planting included 3,000 cucumber plants, 14,000 Earliana and 20,000 Stone and B. B. tomato plants, and 10,000 mellon plants. We ship to commission men in the cities, many of whom we find reliable, although on the start I had dealings with some who were quite the reverse. We also ship more or less to about 80 towns in Ontario, including a few in Quebec, Manitoba and Nova Scotia, where we deal direct with the retailers at a quoted price. The cities we ship to include Winnipeg and the cities of Ontario and Quebec.

"The greatest competition from southern growers is at the winding up of their season, when they send their fruit into the Dominion, under, as I am given to understand, some arrangement with the railway companies whereby no charge for freight is made if the price realized does not make it up. We fruit and vegetable growers of Canada should follow the example of the

An Interior View in One of Mr. J. D. Fraser's Greenhouses, at Leamington, Ont.

This greenhouse is 168 feet long by 31 feet wide. In it a large number of tomato plants and other vegetables were started this spring for the early markets.

Manufacturers' Association and see that our interests are protected along these lines. Owing to our geographical position our neighbors to the south have the advantage, as their early stuff always brings a price sufficient to enable them to pay the present manipulated low tariff, and by the time we can compete in their markets the price is such that we cannot afford to pay the duty, consequently we are not working on an equitable basis.

AN IMPROVED GREENHOUSE.

"With the old system of greenhouses, ordinarily in use, I found that the getting in and out of the soil, which has to be changed so often owing to the different crops being moved out either to hardening houses or the fields, took too much labor, as the stuff had to be carried or wheeled in and out through the ends. This led me to experiment, with the result that I have so changed my greenhouse that I can now drive a team along the side and shovel the soil right into the beds. When removing the plants the same saving of labor is effected. This kind of greenhouse cuts the labor to about one fourth. The side sashes create a current of air in connection with the top ventilators and make it possible to work inside on a hot day nearly as comfortably as in the open. I also find that the more thorough ventilation thus secured produces far better plants than under ordinary conditions.

"In the earlier stages we have tomatoes and cucumber seedlings in the house together, and as they advance in growth gradually work them out into the smaller and cooler houses under cotton and glass. The smaller houses are mostly covered with glass that can be opened easily on suitable days for hardening off the plants previous to setting them out in the field. Glass being rather expensive we aim to keep the benches in the house steadily in use. As soon as the plants are large enough and are removed from the large house we plant out cucumber or other plants in the greenhouse to produce a crop for the market.

"I had a visit recently from Mr. Robt. H. King, engineer for the King Construction Co., of Toronto, who was much interested in my plant and buildings. Mr. King was especially pleased with the ventilating sash as used on the sides of the larger greenhouse, which he considered is a new idea."

SPINACH BEFORE TOMATOES

"I GENERALLY run spinach on the ground intended for tomatoes," said Mr. Wm. Waller, of Bartonville, to The Canadian Horticulturist recently. "For an early spring crop I sow the seed in the latter part of August or early in September. This gives a crop of spinach ready for market by the last of April. In this way I get two crops off the same ground in one season.

"The spinach seed is sown in drills about 14 inches apart. By the time frost comes the plants are about in the fourth leaf. They should be protected during winter by a covering of straw, old tomato vines or a similar covering that is not too heavy but still holds the snow well. It should be planted on high dry soil, because wherever water lies it would be winter killed. A heavy sand loam suits best. When the covering is removed in the spring it comes on rapidly with the first warm weather.

"There is also a spring spinach," said Mr. Waller, "which can be sown in the spring as soon as the frost is out of the ground. If kept well cultivated this crop is ready by May 24. Most of this vegetable grown here finds ready sale on our local market, but sometimes it is profitable to ship it to Montreal or some other city."

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

LESSONS IN PACKING.

The Department of Agriculture, Ottawa, is to be congratulated on having secured the services of Mr. B. T. Boies, of the Coldstream Ranch, Vernon, B. C., for the purpose of giving instruction in fruit packing in eastern Canada. Mr. Boies was selected by the Coldstream Ranch in British Columbia as head packed, as he had had several years experience in California, Washington and Oregon. He is therefore, properly fitted to give pointers in the very latest and best methods in fruit packing before even the best fruit growers in Ontario, Nova Scotia and other provinces.

It is the intention of the Department to have Mr. Boies visit various parts of the Maritime Provinces, Quebec and Ontario, giving demonstrations in the packing houses in the large centres, and probably overseeing what may be termed classes for beginners in box packing in the various fruit districts. The exact itineracy has not yet been planned definitely, but will probably be announced in our next issue. It is to be hoped that this will lead to much more extensive work another year.

In no department of fruit growing is the eastern grower at greater disadvantage than in the matter of packing and grading. For want of proper attention to these points eastern Canada is losing a most profitable trade in the northwest, and is obliged to take an inferior price for her best fruit in the foreign markets.

THE MARKET GARDENERS' CHANCE.

During August leading members of the Ontario Vegetable Growers' Association will visit the principal cities and towns of the province in an effort to form branches of the association. The leading market gardeners in the sections visited should give these delegates a cordial reception and should do all in their power to assist in completing organization in their districts. There will be many growers who will hold back and refuse their assistance for fear the stranger is after their money. These men will require patient handling.

The idea of a strong provincial association is so new to market gardeners it may prove difficult at first to convince them of the need for such an organization and of the benefit it will be to them. One of the best methods of reaching these men will be by explaining that instead of wanting their money the desire of the association is that they shall share in the grant the Ontario government has made for this work. No industry is in greater need of better organization than that of the vegetable growers. May success crown the efforts of those who will this month endeavor to secure this organization.

THE SAN JOSE SCALE.

The announcement by the provincial inspector, Mr. J. Fred. Smith, that the San Jose scale continues to spread in Ontario and that new districts are being infested calls for action of some sort. A serious feature of the situation is that now the panic the scale caused a few years ago has subsided it is difficult to arouse growers to the seriousness of the situation.

The proper enforcement of the laws already in effect would do much to prevent the further spread of this destructive pest. Growers who refuse to destroy trees that have been ruined beyond hope of redemption should be forced to do so. A few actions in court, such as those tried at St. Catharines last year, would have a beneficial effect. It is not likely that the scale will ever be completely driven out of Ontario, but this should not prevent the taking of steps which will help to make it impossible for the carelessness of some growers to result in serious injury to their neighbors.

The truth of the adage that big results from little causes flow is borne out by the case of the Oakville Basket Company, of Oakville, Ont., which last January signed for eighteen dollars' worth of advertising space in The Horticulturist. This month The Horticulturist has received an application from Smart Bros. of Collingwood, Ont., for one of the handsome prizes we offer to readers who buy goods from our ad-

vertisers, this firm having purchased $442.82 worth of baskets from the Oakville Basket Company through seeing their advertisement in The Horticulturist. The Oakville Basket Company, writing about their advertisement, say: "We have received several orders from having the advertisement in your paper, and have two or three customers who intend to submit their names for some of your premiums, including Smart Bros., of Collingwood, Ont., and Auguste Dupuis, Village des Aulnais, Co. L'Islet, Que." How is that for an example of a small advertisement and large returns. A check for five dollars has been sent to Smart Bros., and a prize will also be given to Mr. Dupuis if he applies for it.

We regret to have to warn our readers against doing any business with the Indianapolis Nursery Co., Indianapolis, Ind., which had a full page advertisement in the April and May issues of The Horticulturist. This advertisement was accepted by us in good faith and we, therefore, regret to learn from some of our readers that they have sent orders and money to the company without receiving any response. In some cases their communications have not even been acknowledged. Another suspicious circumstance in regard to the good standing of this company is that it has not paid for its advertisement. The Horticulturist, however, expects to have a few bad accounts each year. Its greatest regret is that its readers should have suffered loss. We know all the advertisers we are now dealing with to be thoroughly reliable.

In spite of the fact that a large number of extra copies of the June Horticulturist were printed our supply has become exhausted. The relatives of the late R. W. Lloyd, of Deseronto, whose portrait was published in that issue, would like some extra copies of that number. Our readers who can spare their June numbers will confer a favor either by mailing them to this office or to Mr. D. McClew, the president of the Deseronto Horticultural society.

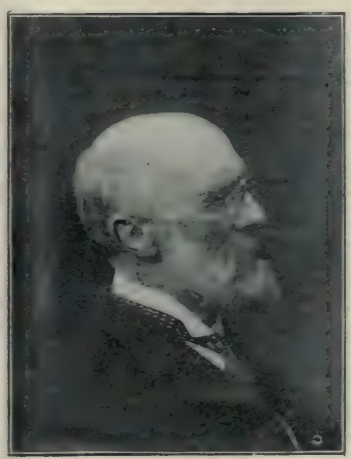
The members of the Canadian Horticultural Association always manage to work a great deal of fun and profit into their annual conventions. Here's hoping that their annual convention in Montreal this month will be the most enjoyable and profitable in their history. Professional florists should not miss these meetings.

Items of Interest

The members of the Toronto and Hamilton branches of the Ontario Vegetable Growers' Association will hold a joint picnic at Burlington Beach, August 16. Several hundred will go from Toronto, and it is expected the attendance from the Hamilton district will be about equally as large. There will be a program of sports and a fine time is assured for all.

A movement is under way whereby a number of cars of mixed fruit, carefully picked and packed, may be forwarded to Winnipeg during this coming fruit season, with a view to testing the various types of refrigerator and ventilated cars, as to their respective advantages in carrying fruit a considerable distance, and these cars will be under careful supervision from first to last and every condition and circumstance noted that might be likely to affect the fruit in any way. It is expected to commence shipping the latter part of August and continue the shipments from St. Catharines and points west as far as Hamilton during the season as may be found expedient.

Toronto's Sad Loss



EDWARD TYRRELL.

The members of Toronto Horticultural Society were greatly shocked to learn on the morning of July 18th of the death of their well-known ex-president, Mr. Edward Tyrrell, of Toronto. Mr. Tyrrell was apparently in perfect health and about an hour before his death had been in his lovely garden with his flowers, of which he was a great lover and out of which he took much pleasure and pride. Mr. Tyrrell was 68 years of age, and was for three years president of the Toronto society, for which he did much. Many readers of The Horticulturist became acquainted with Mr. Tyrrell through the series of interesting articles written by him, entitled "Flower and Plant Lore," which appeared in this magazine. Early in June The Horticulturist had a visit with Mr. Tyrrell, who was very enthusiastic at that time regarding a larkspur in his garden, which he had planted and which had attained a height of considerably over 6 feet, with a flower spike over 12 inches long. Mr. Tyrrell's presence will be greatly missed at the meetings of the society. Among those present at the funeral was Hon. G. W. Ross.

Fruit Crop Notes

A report from Mr. W. H. Dempsey, Trenton, on July 25, states that the apples are dropping badly. Also the leaves have been attacked by a fungous disease which causes them to turn yellow and fall. The fruit, however, is clean.

Mr. C. W. Neville, of Newburgh, says that the quality of fruit in Addington county promises to be good. Pears are a failure except the variety, Louise Bonne, which is well loaded.

From Nantyr, Simcoe county, Mr. Stanley Spillett reports that Pewaukee apples are falling off.

Rev. Father Burke, of Alberton, Prince Edward Island, reports that this is an off year for apples. They are not more than half crop. Pears are medium and plums light. Spraying has been pretty general and insects and fungous diseases not in evidence.

TRADE NOTES FOR PROFESSIONAL FLORISTS

The Montreal Convention

The Canadian Horticultural Association Convention, at Montreal, August 8, 9, 10 and 11, promises to be "vaster than has been," and it goes without saying that it will be enjoyable. Montreal is an ideal place for an "ornamental horticulturist" to visit on account of the many beautiful gardens, as well as the grand natural scenery, the view from the top of the mountain being a sight that no Canadian should miss.

But in looking forward to the entertainment part of the convention florists must not forget that there is important business to be transacted during the four sessions devoted to the interests of the profession, and every one who has these interests at heart should make a special effort to attend. In these days "the butcher, the baker, the candlestick maker," etc., etc., all have "conventions and things" and reap no small benefit thereby; surely our profession should not lag in the rear of the grand procession. The country is prospering and making money, M. P.'s and Senators have got a raise, and there should be a little more going to the florist, seedsman and gardener in consequence, if they are not too backward in putting themselves forward. Then Ho! for Montreal. For programs and information apply to A. H. Ewing, Woodstock, Ont.

Woodstock's Gardens

Mr. H. G. Doyle, who lately sold his greenhouse plant to Mr. J. Dickenson, has started to put up two houses near his old stand. The King Construction Co. are supplying the material with all their latest improvements.

The gardens surrounding the residence of John White, Esq., on Vansittart avenue, have been much enlarged and improved and have quite a metropolitan appearance. Mr. Greig, the gardener (a late arrival from Scotland, and thoroughly experienced), deserves great credit for the good work done in so short a time.

"Altadore," the former residence of the late Hon. James Sutherland (now of H. A. Little, Esq.), is looking its best. The large quantity of trees and shrubs planted two years ago are beginning to show up, and the late rains have made the large expanses of lawn look their greenest. This is really a beautiful old place, and no visitor to this city should miss seeing it. Four men are employed in the gardens most of the summer. A horse-mower and two hand mowers cut the lawns, etc., in a day and a half. This spring and early summer the grass has all been cut twice a week, some of it three times. There are, also, about two acres of kitchen garden and an acre of orchard, besides shrubbery, pasture, etc., 22 acres in all. There are many very pretty and well kept smaller gardens in the city, and as the horticultural society is in active operation, the people are well supplied with information, novelties, etc. Mr. James Hoare goes in for roses and grows them nearly as fine as they do in the old country. Mr. R. Woodroofe goes in for gladiolus in large quantities and grows nothing but the best. Some of these days the Canadian Horticultural Association will have to pay a visit to Woodstock.—(A. H. Ewing.

Montreal Notes and the Convention

The usual summer dullness in trade is on us now in earnest, with the thermometer hanging around 90 degrees every day and a great amount of humidity in the atmosphere. It is impossible for trade to be any other way; everybody who possibly can is out of the city trying to get a cool breeze and not thinking of buying flowers. But whilst the store men are taking a rest the growers are as busy as possible building, mending, etc.

Roses are growing fine, this weather just suiting them. Chrysanthemums are all planted and doing splendidly; fewer varieties than usual are being grown, but in larger quantities. Carnations have done well in the field this year, and housing will start in earnest next week. A few asters are to be seen in the stores, but outdoor asters are late. Up to the present they are not showing signs of the yellow, and the bug is not as plentiful as usual.

But, if trade is quiet, the convention committee is very lively. They have everything well under way, and a pleasant and instructive time is assured for all the delegates. Reports from the different cities promise a large attendance, which is the only thing required to make the convention the success anticipated. We would like to impress on the delegates the advisability of staying over the four days. The fourth day will be given up entirely to visiting the private places for which Montreal is renowned. The owners have signified their willingness to allow their places to be thrown open to the members. The Montreal Gardeners' and Florists' Club will pay all expenses for that day. The banquet has been arranged and the tickets will be $1.00 each.

The railway rates are the same as last year, viz., fare and one-third if more than 50 delegates attend. I would like to impress on all attending the necessity of travelling by rail and taking a certificate. It will be far more to their advantage to spend the extra day in Montreal rather than spend the time on the boat, at the same time helping their brother delegates to get a reduced rate.——(G. A. Robinson, Montreal, Que., July 24.

The Trade in London

Routine work is progressing favorably. Chrysanthemums are all planted and the crown buds on "opah" are swelling fast. Present indications are that the flowers will be ready for cutting by the first week in September. Others of early kinds are growing fast, such kinds as Bergmann, Geo. A. Kalb, The Pacific Tribe, Omega, Amorita (the very best early pink), are climbing fast. Carnations in the field are anxiously looking for a drink, but the

very favorable weather all through the early part of the season gave them such a splendid start that a moderate drouth will do them little harm. Sweet peas are remarkably dwarf in this vicinity, but the flowers are good and moderately plentiful. I hope later to be able to give comparisons of some of the best varieties. Asters are fairly plentiful. Queen of the Market is about the only one for which we have any demand. Perennial phlox is appearing in quantity all over the city. This class of plants is getting very popular.

DISTRICT NOTES.

Mr. H. L. Jansen, of Berlin, has his place in excellent condition; probably the features are two houses of tomatoes and two houses of cucumbers in full bearing. Mr. Jansen reports an excellent market for these products. Chrysanthemums are looking fine, the early ones especially being well advanced. Carnations are grown partly in the field and partly inside. Both lots of plants are looking well. The Boston ferns in 5 and 6-inch pots are the best seen for some time.

Mr. Wilson Iler, the apairy specialist, has a most extensive and lively stock in this line. His greenhouses are filled with a miscellaneous stock in good condition.

Mr. G. L. Peltz, of Preston, is also looking well and reports the late bedding trade as excellent. It is worthy of note that red and crimson geraniums were invariably scarce in this district the past season.

Mr. John Wells, of Galt, has a collection of Rex begonias that is most complete. A limited number of big specimens grown especially for the local exhibition are magnificent.

THE CANADIAN HORTICULTURAL SOCIETY.

I had the pleasure of receiving a letter from my old friend Mr. Geo. A. Robinson, president of the Canadian Horticultural Association, n convention matters. He tells me the meeting will be a banner one, and I can quite believe him. I also had a letter from another old friend on Lake St. Louis. He says they are contracting for a supply of ice to keep the boys cool, and amongst other things that they have a newly imported Scotch plant down there called "The Epicure," that the committee is to report on. We shall all be glad to see it. I also got the information that the Montreal growers were going to try and lift the Toronto chrysanthemum cup this year. Wonder what they want to butt in for.

In reference to transportation, the London delegation will go by boat from Toronto. I have to go that way. My wife won't let me go by train this time, and it's all Willie Hall's fault. We shall leave Toronto on Saturday and arrive at Montreal—later.

Of course our friend Tom Manton will be along. Recollect the Montreal "bounce," Tom, and take a spare pair of trousers along this time.—(Fred. Bennett.

Some Perennials of Note

Charles Webster, of the Webster Floral Company, Hamilton, says: "I consider Campanula Persicaefolia Moerheimi the most meritorious perennial of recent introduction. In comparison with the variety Alba Grandiflora Plena it is a great improvement. The flower stems are clothed with flowers from top to bottom. Each flower is large and as well formed as a camellia. It is the strongest growing variety grown in this section.

"The little Thrift (Statica Armeria) is beautiful at this time of year for borders, or, in fact, in any position where the surrounding plants are not too tall. Having noticed that some of the plants raised from seed come a washy pink color, I am now propagating by divisions from bright colored plants only. Sedum Maxium (Atra purpureum) reminds one in general growth of the Sedum Spectabile (Live-for Ever), but it is stronger and larger growing and the foliage is brilliantly colored, sometimes crimson and sometimes dark maroon. It seems to be hardy anywhere.

"The Gaillardia Grandiflora has in recent years undergone development not unlike that seen in the Cactus Dahlias. Some of the flowers are oddly quilled, but none of the varieties seem to take as well as the large, broad-petalled flower, showing plenty of crimson coloring. Two shrubs which are worthy of note are Acacia Hispida, commonly known as the Rose Acacia. It is perfectly hardy here and its large clusters of pink sweetpea-like flowers make it one of the very prettiest shrubs. A little pruning is necessary to keep it in symmetrical shape, but it well deserves a lot of attention. Weigela Eva Rathke is a beautiful red variety and fully merits every word of praise which has been given it. It is hardy, as dark in color as the variety Lavali, but it is a clear crimson with well opened flowers, which show the color well. It is too bad that the beautiful Weigelas are not hardy in northern Ontario and the west. They are certainly among the very showiest shrubs that can be planted."

Toronto Florists

"The season has just opened for asters and gladioli," said Mr. H. G. Dillemuth to The Horticulturist. "They are coming in fine. Weather conditions have been favorable and these flowers should be good all season. Roses are scarce, and what do come in are a small grade of inferior flowers. Carnations are fairly good but are being replaced by asters. Lilies are plentiful. They are being grown more extensively than ever before in this section at this season. Lilium speciosum, Lilium album and Lilium roseum are all good sellers.

"There has been a great run on centaurea this season. These beautiful flowers appear in white, mauve and yellow shades and are very saleable. Sweet peas are excellent and in good demand. Local growers are busy getting carnation plants in from the field. The young

stock has made good growth and the plants are in fine condition."

TRADE DULL.

"Trade has been somewhat dull," said Mr. J. S. Simmons, the Yonge street florist. "Funeral orders form the bulk of the trade now. Asters, lilies and sweet peas are the main stock. Gladioli are coming in. The specimens are excellent but not abundant. The centaurea is a lovely flower and well liked by some, but there is not a heavy run on it as it does not last long. It is a one-day flower, maintaining its freshness about the same length of time as the summer carnation."

NOTES.

D. J. Sinclair reports business better than is usual at this season, owing to the demand for funeral flowers and from the hospitals, etc. Gladioli are coming in in quantity and the demand is brisk. Asters are in fair supply, mostly white. Carnations are off owing to many of the growers having replanted. Roses are out of season. What are coming in are very inferior, with the exception of some very fine Kaiserine. Peas in good supply.

D. J. Sinclair intends making an exhibit of supplies at the Montreal convention.

E. Crowhurst, of Mimico, is sending in the finest asters seen in Toronto.

Geo. Gard is cutting some very fine Lilium Aratum.

Grobba & Wandry, of Mimico, are supplying some excellent Album and Rubrum lillies.

Without exception the best sweet peas supplied to the Toronto florists are those grown by Miss F. F. Young, of Bradford, Ont., who, although an amateur, has the cultivation of sweet peas down to a science.

Campbell Bros., of Simcoe, are supplying a choice lot of gladioli to the Toronto florists. This firm has 15 acres from which to cut, and judging from those coming in will have some fine ones as the season advances.

A rather unusual sight was seen recently when Mr. Thos. Manton, swinging gaily in his hammock among a carload of palms, dracenas, orchids, crotons, auracarias, orange trees, etc., left Toronto for Winnipeg, to decorate the new store of The T. Eaton Co. Mr. A. Jennings, manager of the floral department in the Toronto store, in speaking of the trip to The Horticulturist, said it was a record trip in many ways. The car left Toronto July 5, arriving in Winnipeg July 8. Mr. Manton accompanies the car. On arriving at Winnipeg some of the boys evidently thought the fruit on the orange trees was brought for their special benefit, as they helped themselves during Mr. Manton's absence. Such a display was never before witnessed in Winnipeg, and the palms, some of which were 20 feet in height, caused a sensation.

HAMILTON'S FRUIT AND FLOWER SHOW

The Hamilton Fruit and Flower Show, advertised in this issue, will be held in the Thistle Rinks, Hamilton, September 12, 13 and 14. The prize list is one which should assure the exhibit of the best fruit and flower products from the finest fruit and flower sections of Canada. The Hamilton Horticultural society is straining every effort to make the exhibition a success. They are in no way competing with the Fruit, Flower and Honey Show at Toronto, but believe that their dates are so arranged that they will be able to have many of the early fruits on exhibition which will not be in condition in November.

The fruit list is a very extensive one, embracing 50 sections of apples, and offering large prizes for export fruit in boxes 10 x 11 x 20 inches, confined to the following varieties: Alexander, Blenheim, McIntosh, King, Wealthy, Baldwin, Spy, Ontario, Gravenstein, Louise.

In grapes there are 37 sections, including the most profitable varieties.

In peaches prizes are offered for 22 sections, giving special prizes to seedlings worthy of introduction, thus encouraging the art of the hybridist. The majority of peaches will be at their best during this exhibition.

Fifty-three prizes are offered for pears, including premiums for the best commercial and dessert varieties.

The plums are a fruit which will be in splendid condition for this exhibition, and the directors have realized this fact by offering prizes for 25 different varieties and special prizes for collections of Japanese and English plums, also for general collections of merit. The quince, a fruit which is not used as extensively as it should be, has not been overlooked.

PRIZES FOR FLOWERS.

It would be a mistake to conclude that while the society has done everything to encourage the production of fruit that it has in any way neglected flowers. Good prizes are offered covering 100 sections, embracing foliage, flowering and specimen plants, hardy herbaceous perennials, annuals, and almost all cut flowers which will be in bloom about September 12.

The professional florists have been liberally dealt with. While their prize list is not as large yet good prizes have been offered, and the Hamilton Horticultural society well knows from past experience that they have not only have the support of local florists but from all professionals who can possibly attend.

Mr. J. M. Dickson, of 22 Bruce street, Hamilton, Canada, would be pleased to receive applications for prize lists and entry forms from all interested. No entry fee will be charged. Entries close September 4.

OUR SPECIAL FRUIT CROP REPORTS

Judging from reports received from correspondents in the different parts of Ontario up to July 26, the fruit crop will be almost an average one. Apples and pears had promising bloom, but wet weather and lack of sunlight at the proper time prevented the fruit from setting. In many sections the fruit set, but fell off later on.

Cherries were a full crop in many districts, but some growers lost a great portion of the crop by rot which came with destructive force in a day or two just when the fruit was ready to be harvested. Sweet cherries suffered more in this respect than did the sour varieties. Strawberries varied from a half to full crop, but the sample was good. Other small fruits promise greater yield than last year.

An abundant crop of plums set, but many fell off during the wet weather, and some sections report rot setting in. Despite these facts, however, the crop will be much ahead of last year.

Peaches and grapes have excellent promise. Some correspondents state that the yield will be three times last year's, but on the whole 25 per cent. increase seems to be the average estimate. The decrease owing to the destruction of trees during the severe winter of 1903-4 will scarcely be made up by the higher yield where trees escaped the frost. Grapes are ahead of last season's supply, but already the destructive rot is showing, and unless weather unfavorable to its development sets in a considerable percentage of the crop will be destroyed in a number of sections.

PROSPECTS IN LAKE ERIE SECTION.

The outlook for apples in the counties along Lake Erie is not very bright. Most reports state that the crop will be light and only 40 to 50 per cent. of last year's yield. Pears are also very light, and in many cases reported as a failure. Reports give plums medium to heavy crop, or about double that of last season. Cherries did not yield as well as was anticipated, but peaches and grapes are much ahead of last year. Strawberries have been scarce, but other small fruits have excellent promise.

NIAGARA PENINSULA OUTLOOK.

Apples in the Niagara district have a poor promise. One grower places the yield at 10 per cent. that of last year. The prospects, however, are for 30 to 50 per cent. The deficiency in apples is made up by a fine promise of other fruits, even pears in some cases being a fair crop. Cherries were abundant, but rot destroyed some orchards. Plums promise 40 to 75 per cent. increase over last year's yield. A report from Ridgeway says the plums are falling off, while one from Glanford states that rot is developing.

HEAVY CROP OF PEACHES.

Were it not for the fact that so many peach trees were destroyed by frost, this season would give a bumper crop. Almost every orchard in the Grimsby and St. Catharines districts promises an increase of 20 to 40 per cent. over last year's yield. Several growers are shaking or picking off the fruit so that they may have better quality. The grape crop promises to be about the same or slightly better than 1904.

IN BURLINGTON DISTRICT.

Apple growers in the Burlington district promise only a medium crop, some reports placing it at one-third that of last year. Pears are a light crop. Plums, peaches and grapes are very much above the yields of last season. Small fruits are a medium to full crop.

COUNTIES ALONG LAKE ONTARIO.

Early apples are a medium crop in the counties bordering on Lake Ontario, but the fall and winter varieties are not up to last year except in a few cases. The fruit, though lacking in quantity promises to be above the average in quality. Pears are scarce and scab has been reported bad in Ontario county. The outlook for plums is for a full crop, double that of 1904.

POOR PROMISE ALONG LAKE HURON.

As anticipated in last month's report, the apple crop in the Lake Huron district will be light. The best the growers can promise is 30 to 50 per cent. of last year's yield. Pears promise a light crop to a failure, although one report quotes 25 per cent. ahead of 1904.

GEORGIAN BAY COUNTIES.

Reports from growers in the Georgian Bay district place the apple crop equal to last year's. Ben Davis trees are well loaded. Prospects early in the season were bright for the Pewaukee, but the fruit is falling off. Plums promise a heavy yield, while small fruits are better than last year.

Florists

WRITE us for quotations on young stock of Primulas (Chinese and Obconica), Cinerarias, Cyclamen, etc.

Also Palms and Araucarias of very select quality.

You will find our prices right.

THE WEBSTER FLORAL COMPANY, LIMITED

WHOLESALE AND RETAIL FLORISTS

HAMILTON, ONTARIO

PROSPECTS IN INLAND COUNTIES.

From inland counties come the best reports for apples. Dufferin, Peterborough and the south part of Simcoe promise as good or better yield than last year. Pear trees are very scarce and the yield poor. Plums are reported as being a medium to full crop. Small fruits, too, are plentiful.

OTHER SECTIONS.

Apples promise to be a heavier crop in the Ottawa valley than they were a year ago. McIntosh, Wealthy and Fameuse are quoted as being a good crop. A noticeable feature is the absence of fungous diseases. In Muskoka apples are reported up to last season's crop and coming in earlier. In Algoma district the promise is slightly better than 1904. Pears and plums have not recovered from the winter of 1903 and 1904. All small fruits are a heavy crop.

Fruit Crop Notes

Writing from Essex county, J. O. Duke, of Olinda, says that present appearances point to the apples of that section being quite wormy.

Jas. Symington, of Port Dover, reports that strawberries were light, but other fruits will be a good crop.

A report from Robt. Thompson, of St. Catharines, says that the hot weather is having a good effect in preventing rot on the grapes. From Hamilton R. H. Lewis reports that black rot has already started.

On July 19 John Rice, of Whitby, writes that appearances earlier in the season favored a large crop, but continued wet weather caused much of the fruit to drop.

From Bond Head, H. B. Jeffs reports that plums have been infested with a host of "little black bugs" and that black knot is very prevalent.

D. M. Lee reports from Paris that raspberries are a short crop and that plums have nearly all rotted.

In the Okanagan Valley, British Columbia, the fruit is expected to ripen a week or 10 days earlier than usual owing to warm dry weather.

J. E. McNeill, of Wanstead, Lambton county, has a fine quince tree which has borne a good crop each season for five years.

The Davis Clothes Line Reel

We make this reel. It is for the yard. It has 130 feet of clothesline, twisted wire, and occupies only a 16 foot circle. You tilt it to one side to pin the clothes on, then straighten it up with a push. It then holds the washing high off the ground. The wheel turns round with the wind, and dries the clothes evenly and quickly. No more yard tangled up with clothes line to run against—no more washing falling into the mud. It is cheap too, and durable. Sent all ready to set up, needing only a post hole. Circular free. See our address on last cover page of this issue.

The Waggoner Ladder Co., Limited

The Season for **ROSES** may be past and gone, but the season for

BUYING

ORNAMENTALS, VINES, SHRUBS AND TREES

is never past.

IT PAYS TO BUY THE BEST

Write for our illustrated catalogue.

The Helderleigh Nurseries

SALESMEN WANTED. **E. D. SMITH, Winona, Ont.**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

FRUIT, FLOWER AND VEGETABLE PRIZE LIST

The prize lists for the floral and vegetable sections of the Provincial, Fruit, Flower, Vegetable and Honey Show, or The Ontario Horticultural Exhibition, as it is proposed to call it, have been completed and a portion of the fruit prize list. The prizes in the floral section will be worth about $1,000, in the fruit division $800, and for vegetables $200. Here are the prize lists as completed to date:

FLORAL EXHIBITS.

The rules governing the floral exhibits will be published in the prize list. They require that all exhibits, except made-up work, must be grown by the exhibitor and in his possession three months before the date of the show.

"Bulb Culture for the Amateur"

10c

Address Secretary Horticultural Society,
195 Pretoria Ave., Ottawa, Ont.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private
Pleasure Grounds made by . . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY
Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.

CANADIAN

National Exhibition

TORONTO, ONT.

August 26th to September 11th, 1905

Upwards of $4,000.00 in prizes for

Horticulture and Floriculture

Entries close Monday, August 14th.

Special arrangements on all lines of travel and transportation.

For entry blanks, prize lists and all information address

J. O. Orr, Mgr. and Sec'y, City Hall, Toronto

W. K. McNaught, President

GET OUR CATALOGUE OF
RUBBER STAMPS
AND STENCILS
THE SUPERIOR MFG. CO.
58 ADELAIDE ST. W. TORONTO.

CLASS A—CHRYSANTHEMUMS, PLANTS AND MISCELLANEOUS.

Best I specimen, any variety or sized pot, 1st $6, 2nd $5, 3rd $4.

Best 1 standard, any variety or sized stem, not more than 3 feet, 1st $6, 2nd $5, 3rd $4.

Best 3 specimens, white, pots not to exceed 10 inches, 1st $12, 2nd $10, 3rd $8.

Best 3 specimens, pink, pots not to exceed 10 inches, 1st $12, 2nd $10, 3rd $8.

Best 3 specimens, yellow, pots not to exceed 10 inches, 1st $12, 2nd $10, 3rd $8.

Best 12 single stems, and flowered, not less than 4 varieties, in 6-inch pots, 1st $6, 2nd $5, 3rd $4.

Best 5 single stems and flowered, not less than 8 varieties, in 6-inch pots, 1st $12, 2nd $10, 3rd $8.

Best 12 specimens palms, not less than four varieties, pot not to exceed 10 inches, 1st, $10, 2nd $8, 3rd $6.

Best 50 ferns, not less than 3 varieties, pots not to exceed 3 inches, 1st $5, 2nd $4, 3rd $3.

Best 25 ferns, not less than 6 varieties, pots not to exceed 3 inches, 1st $4, 2nd $3, 3rd $2.

Best 6 specimens ferns, 1st $10, 2nd $9, 3rd $6.

Best 1 orchid in flower, 1st $3, 2nd $2, 3rd $1.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

GREENHOUSE AND STOCK FOR SALE—TEN thousand feet of glass; one of the best equipped greenhouses in Toronto, located in the best residential sections of Parkdale. large plant trade; residence, stable and everything in good condition. Apply to F. C., care of The Canadian Horticulturist.

FOR SALE—FLORIST BUSINESS, WELL established in good residential part of Toronto; new brick store and dwelling; also greenhouses. These may be purchased separately or combined; owner has excellent reasons for retiring. A bargain if sold immediately. Apply to M. L., care of The Canadian Horticulturist, Toronto.

APPLE GRADER. A FIRST-CLASS PETTIT Fruit Grader, in perfect working order, for sale at a bargain. Address L. Woolverton, Grimsby, Ont.

CACTI FOR SALE. A COLLECTION OF RARE and Varied Cacti. Apply Rev. C. E. Whitcombe, Hamilton.

CACTI—FOR SALE, A VARIED AND RARE collection of Cacti, made by the late William Raynor, of Hamilton. Apply to Mrs. Wm. Raynor, 61 Steven street, Hamilton.

Best 6 cyclamen, in bloom, pots not to exceed 8 inches, 1st $5, 2nd $4, 3rd $3.

Best 12 primulas, in bloom, pots not to exceed 8 inches, 1st $5, 2nd $4, 3rd $3.

Best 6 pots of callas, in bloom, pots not to exceed 8 inches, 1st $5, 2nd $4, 3rd $3.

Best 6 begonias, in bloom, pots not to exceed 8 inches, 1st $5, 2nd $4, 3rd $3.

Best group of plants, arranged for effect, consisting of mums, palms, ferns and selaginellas, space not more than 90 square feet, Hallam cup, 1st $30, 2nd $25, 3rd $20, 4th $15.

Best group of foliage plants, arranged for effect, in which mums may be introduced, space not to exceed 90 square feet, 1st $20, 2nd $15, 3rd $12, 4th $10.

Best display of orchids, in which nepenthes and any foliage may be used, arranged for effect, 1st $25, 2nd $20, 3rd $15, 4th $10.

CLASS C—CUT BLOOM (CHRYSANTHEMUMS.

Best 25 distinct varieties, cup, 1st $8, 2nd $6, 3rd $4.

Best 12 distinct varieties, Hallam cup, 1st $6, 2nd $4, 3rd $3, 4th $2.

Best 25 T. Eaton, cup.

Best 25 Dr. Oronhyatekha, cup.

Best 25 any varieties, 1st $10, 2nd $8, 3rd $6, 4th $4.

Best 12 one variety, 1st $6, 2nd $4, 3rd $3, 4th $2.

Best 6 distinct varieties never before exhibited in Ontario, 1st $5, 2nd $4, 3rd $3, 4th $2.

Best 6 white, 1st $4, 2nd $3, 3rd $2, 4th $1.

Best 6 pink, 1st $4, 2nd $3, 3rd $2, 4th $1.

Best 6 yellow, 1st $4, 2nd $3, 3rd $2, 4th $1.

Best 6 crimson, 1st $4, 2nd $3, 3rd $2, 4th $1.

For largest bloom in the show, prize R. J. Score' guinea pants.

CLASS D—CUT BLOOM, CARNATIONS.

Best 25 white, named, 1st $4, 2nd $3, 3rd $2.

Best 25 red, named, 1st $4, 2nd $3, 3rd $2.

Best 25 light pinks, named, not darker than Scott, 1st $4, 2nd $3, 3rd $2.

Best 25 dark pinks, not lighter than Scott, 1st $4, 2nd $3, 3rd $2.

Best 25 crimson, 1st $4, 2nd $3, 3rd $2.

Best 25 fancy, 1st $4, 2nd $3, 3rd $2.

Best 25 new, introductions of 1905, 1st $5, 2nd $4, 3rd $3, 4th $2.

Best 25 new, not yet introduced to commerce, cup.

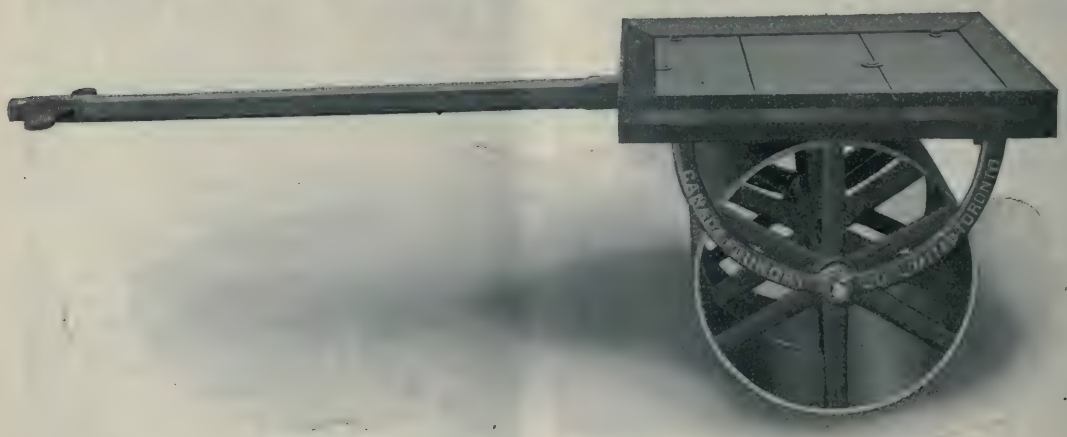
Best 50 blooms, one variety, arranged loosely in vase, 1st $8, 2nd $6, 3rd $4, 4th $3.

Best 50 blooms, any varieties, with any foliage, arranged loosely in vase, arrangement to count in judging, not necessarily grown by exhibitor, 1st $8, 2nd $6, 3rd $4, 4th $3.

CLASS E—DECORATIONS.

Best decorated dinner table, to seat eight, laid complete, exhibitor to supply everything, 1st $60, 2nd $50, 3rd $40.

LAWN ROLLERS



Well made, light and serviceable. Can be weighted when desired.

CANADA FOUNDRY COMPANY, LIMITED

HEAD OFFICE: TORONTO

District Offices: Montreal, Halifax, Ottawa, Winnipeg, Calgary, Vancouver, Rossland

Money Given Free to People who buy Goods from Advertisers in this Issue. See Notice in Advertising Columns.

CLASS F—CUT BLOOM, ROSES.

Best 10 yellow, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10 white, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10 pink, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10 crimson, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10 light pink, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10, any other color, 1st $4, 2nd $3, 3rd $2, 4th $1.
Best 10 American Beauties, 1st $8, 2nd $6, 3rd $4, 4th $2.
Best 25 American Beauties, 1st $15, 2nd $12, 3rd $10.
Best 10 new, introduction of 1905, 1st $6, 2nd $4, 3rd $3, 4th $2.
Best vase of 50 roses, arrangement to count in judging, not necessarily grown by exhibitor, American Beauty excluded, 1st cup, 2nd $12, 3rd $10, 4th $8.

CLASS G—CUT BLOOM, VIOLETS.

Best bunch 50 violets, double, 1st $3, 2nd $2, 3rd $1.
Best bunch 50 violets, single, 1st $3, 2nd $2, 3rd $1.

CLASS H—FLORAL DESIGNS.

Best funeral design, standing crescent, wreath (20-inch frame), 1st $15, 2nd $12, 3rd $10, 4th $8.
Best presentation basket of mums, 1st $10, 2nd $8, 3rd $6, 4th $4.
Best presentation basket, any flowers, 1st $10, 2nd $8, 3rd $6, 4th $4.
Best flat basket of mums, for table decorations, not to exceed 30 inches over all, 1st $10, 2nd $8, 3rd $6, 4th $4.
Best hand bouquet, any flowers, 1st $10, 2nd $8, 3rd $6, 4th $4.

VEGETABLE PRIZE LIST.

Artichoke, red, 12, 1st $2, 2nd $1, 3rd 50c.
Artichoke, white, 12, 1st $2, 2nd $1, 3rd 50c.
Beet, long, 6 roots, 1st $2, 2nd $1, 3rd 50c.
Beet, turnip, 6 roots, 1st $2, 2nd $1, 3rd 50c.
Beans, green, best quart, 1st $2, 2nd $1, 3rd 50c.
Brussels Sprouts, 3 stalks, 1st $3, 2nd $2, 3rd $1.
Cabbage, red, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Cabbage, Savoy, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Cabbage, pointed, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Cabbage, flats, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Cauliflower, best, 3 heads, 1st $3, 2nd $2, 3rd $1.
Cardoon Spanish, red, white, yellow, 1 each 1st $2, 2nd $1.50, 3rd $1.
Celery, Paris Golden, 6 heads, 1st $3, 2nd $2, 3rd $1.
Celery, red, 6 heads, 1st $3, 2nd $2, 3rd $1.
Celery, winter, 6 heads, 1st $3, 2nd $2, 3rd $1.
Carrots, table, best 12 roots, 1st $2, 2nd $1.50, 3rd $1.
Cucumber, White Spine, 2, 1st $2, 2nd $1.50, 3rd $1.
Cucumber, greenhouse, 2, 1st $2, 2nd $1.50, 3rd $1.
Citron, preserving, 2, 1st $2, 2nd $1.50, 3rd $1.
Egg Plants, 3, 1st $2, 2nd $1.50, 3rd $1.
Endive, 6 heads, 1st $2, 2nd $1.50, 3rd $1.
Kohl Rabbi, green, 3 roots, 1st $2, 2nd $1.50, 3rd $1.
Kohl Rabbi, purple, 3 roots, 1st $2, 2nd $1.50, 3rd $1.
Leek, 6, 1st $2, 2nd $1.50, 3rd $1.
Lettuce, Grand Rapids, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Lettuce, head, 3 heads, 1st $2, 2nd $1.50, 3rd $1.
Onion, White Globe, 12, 1st $2, 2nd $1.50, 3rd $1.
Onion, Yellow G. Danvers, 12, 1st $2, 2nd $1.50, 3rd $1.
Onion, Red Globe, 12, 1st $2, 2nd $1.50, 3rd $1.
Onion, Prizetaker, 12, 1st $2, 2nd $1.50, 3rd $1.
Onion, White Pickling, quart, 1st $2, 2nd $1.50, 3rd $1.
Onion, Yellow Pickling, quart, 1st $2, 2nd $1.50, 3rd $1.

Keep the weeds down by using the

"Handy Hand Scuffler"

the best tool in the market for farmers or gardeners. See Candian Horticultuuist of April for particulars. **Wm. Welsh, Kinkardine.**

GEO. VIPOND & CO.

Fruit Commission Merchants

MONTREAL

Reliable——Prompt——Safe

Caught in a Glut

is what happens to the fruit grower who depends on one market to take his crop.

Fortunately their is no need to be thus caught. Canada is wide. There are many centres from Halifax to Calgary anxious to get good fruit from a reliable grower.

THE CANADIAN GROCER is the medium through which the grower can reach these buyers.

An advertisement in our Fruit Department costs little and goes far.

Drop a card for rates.

The Canadian Grocer

TORONTO, ONT.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Parsnip, 6 roots, 1st $2, 2nd $1.50, 3rd $1.
Parsley, 6 stalks, 1st $2, 2nd $1, 3rd 50c.
Radish, winter, 6 roots, 1st $2, 2nd $1, 3rd 50c.
Radish, forcing, 6 roots, 1st $2, 2nd $1, 3rd 50c.
Salsify, 12 roots, 1st $2, 2nd $1.50, 3rd $1.
Spinach, 1 basket, 1st $2, 2nd $1.50, 3rd $1.
Squash, yellow and green, 1 each, 1st $3, 2nd $2, 3rd $1.
Vegetable Marrow, 2, 1st $3, 2nd $2, 3rd $1.
Tomato, red, 12, 1st $2, 2nd $1.50, 3rd $1.
Tomato, pink, 12, 1st $2, 2nd $1.50, 3rd $1.
Potato, red, 12, 1st $2, 2nd $1.50, 3rd $1.
Potato, white, 12, 1st $2, 2nd $1.50, 3rd $1.
Turnip, table, white, 12, 1st $2, 2nd $1.50, 3rd $1.
Turnip, table, Swede, 12, 1st $2, 2nd $1.50, 3rd $1.
Herbs, collection not to exceed 12 varieties, 1st $3, 2nd $2, 3rd $1.

PRESERVED FRUIT.

CLASS 10.

Three prizes of $3, $2 and $1 each will be offered for the best one-quart sealers of canned fruit of each of the following varieties of fruit: Cherries (black), cherries (red), cherries (white), grapes, peaches (white fleshed), peaches (yellow fleshed), pears, plums (red), plums (yellow), raspberries (best, red, black), strawberries.

CLASS 11.

Jams.

In this class the prizes will be $2.50, $2 and $1.50: Black currant, peach, pear, plum, raspberry, strawberry.

CLASS 12.

Jellies.

Three prizes of $2.50, $1.50 and $1 will be offered in each section for the best exhibits of two half pint jars of the following varieties of fruit: Apple, crab apple, currant (red), quince.

In classes 10, 11 and 12 no gelatine or preservatives other than sugar shall be used.

Regular Sailings

The improvement in the regularity of steamship sailings from Montreal means much to fruit exporters. There was a time when specific sailings from Montreal could not be depended on, but in recent years faster and better vessels have been brought to the port, so that now it is a rare thing for a ship to miss her sailing date.

Some apple exporters are apt to overlook this very important feature of the St. Lawrence route, but a glance over the history of the past two or three years will convince shippers that the regularity of the Montreal sailings is worthy of their attention. The Robert Reford Company very early saw the necessity of regular sailings and worked hard to have such a service. The result now is a regular weekly service to Glasgow and London by ships fitted up with cold storage refrigerators and cool air chambers. See advertisement below.

ATLANTIC REFRIGERATOR SERVICE

THOMSON LINE

Montreal and London Service

Cervona, cold storage and cool air, **Aug. 5th**
Iona, - cold storage and cool air, " **12th**
Devona, cold storage and cool air, " **19th**
Kildona, cold storage and cool air, " **26th**
Hurona, cold storage and cool air, **Sep. 2nd**

Direct service to Newcastle, Leith and Aberdeen. Sailing cards will be furnished on application.

DONALDSON LINE

Montreal and Glasgow Service

Tritonia, fan ventilation.....**Aug. 3rd**
Marina, cold storage and fan ven., " **10th**
Athenia, cold storage and fan ven., " **17th**
Lakonia, cold storage and fan ven., " **24th**
Salacia, fan ventilation ..... " **31st**

LORD LINE TO CARDIFF, fortnightly sailings.

FOR SPACE APPLY TO

THE ROBERT REFORD CO., LIMITED

STEAMSHIP AGENTS

Montreal, Toronto, Portland, Me., St. John, N. B.

TORONTO OFFICE: Room 110, Union Station **D. O. WOOD, Western Agent**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

An Interesting Book

Much valuable information for fruit growers and florists is contained in a book, recently published, entitled The Orchard and Fruit Garden, by E. P. Powell, the well known United States authority. The book, which contains over 325 pages and numerous illustrations, is divided in three parts. Part first is devoted to the orchard and deals with the varieties and the handling and marketing of apples, pears, plums, cherries, peaches and numerous other varieties of fruit. Part second is entitled The Fruit Garden, and treats on currants, strawberries, raspberries, etc., a full chapter being devoted to each.

Part third deals with cultural directions. A few chapters are devoted to windbreaks, drainage, irrigation, pruning, spraying, harvesting, marketing, etc. The William Briggs Company, of Toronto, are Canadian agents for this publication.

The Classik Kids

The Classik Kids are a chirpy little pair who have succeeded in placing Sure Grip Shingles, Steel Siding and Classik Ceilings, made by the Galt Art Metal Co., Limited, in the very front row of popularity in this Dominion. Little more than six months have elapsed since these goods were first introduced, but the demand for them has been enormous. The goods themselves are largely responsible for this. Made only of the highest grade materials, by competent workmen, on modern scientific principles, they have found ready buyers wherever they have been exhibited.

This success is built on a sound basis and is sure to be more than doubled in the remaining half year. In the firt place, Galt Steel Sidings and Sure Grip Shingles, applied to any building, make it practically fire proof from without. If it is a farmer's barn, there is no danger from a flying spark from a passing locomotive or a thresher's engine, and lightning has absolutely no effect on a building thus clad in a coat of Galt steel, the latter acting as a perfect conductor. Then they make a barn, or any other building, perfectly wind, rain and storm proof. For interior decoration nothing surpasses Classik Ceilings and Panels in beauty or durability.

New Advertisers in This Issue

Miss Lilly, Toronto, Ont.
Georgian Bay Shook Mills, Midland, Ont.
C. E. Whitcombe, Hamilton, Ont.
Allan Line Steamship Co., Montreal, Que.
W. Briggs, Toronto, Ont.
Clarke & Sinclair, Dundee, Scotland.
J. F. Watson, Ottawa, Ont.
Canada Cold Storage Co., Montreal, Que.
Union Cold Storage Co., Montreal, Que.
Furness, Withey & Co., Montreal, Que.
Art Metal Co., Galt, Ont.

Why? ═══ Why?

The question is, Why should the farmers of Ontario send their boys and girls to the

Ontario Agricultural College?

and the answer is, Because the boys will receive a practical and helpful working knowledge of Scientific Agriculture, and because the girls will be given a first-class training in Household Science at the **MACDONALD INSTITUTE.**

Residence Accommodation is provided for both men and women.

Macdonald Hall, the girls' residence, is one of the best equipped buildings of its kind in Canada, and the boys' dormitories are comfortable and commodious.

COURSES

Courses for Boys, varying from two years to four years in length, commence on September 13th.

Courses for Girls, varying from three months to two years in length, commence on September 13th.

For full information regarding courses, terms, etc., write to **G. C. CREELMAN,** President Ontario Agricultural College, Guelph, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Unsurpassed Facilities

Continuing their policy of improvement in facilities and service from year to year, the Allan Line, Royal Mail steamship service, has this season been equipped with fast steamers and superior facilities for handling apples, fruits, dairy products and other perishables with the utmost despatch. The refrigerators and system of ventilated compartments are thoroughly up to date, assuring discharge of this traffic at destination in perfect marketable condition. The Liverpool service has been augmented by the addition of the new turbine steamers, Victorian and Virginian, which together with Tunisian and Bavarian, constitute the fastest and most up-to-date Canadian line on the Atlantic to-day.

In order to facilitate the handling of apples and other perishables at London the Allan Line steamers now discharge their cargo at the Surrey Commercial Dock Co.'s Greenland Dock, on which has been erected the Canadian Produce warehouses, fitted with refrigerator and cool air chambers, the steamer's perishable cargo being discharged into such chambers by the most improved methods of handling.

Not content with improving the Liverpool and London services only, the Glasgow steamers are also equipped with the most modern systems of refrigeration and sirocco fan ventilation, for the handling of apples and other green fruits, and dairy products, thus making the vessels on this service unsurpassed in both speed and equipment.

With their usual enterprise the Allan Line has, therefore, the fastest and most efficient steamship service to London, Liverpool and Glasgow, the various vessels sailing weekly from Montreal during the season of St. Lawrence navigation.

As a further indication of the progressive policy of the Allan Line, there has been inaugurated this season a fortnightly service from Montreal to Havre, France, thus placing the Canadian exporters in closer touch with their French customers and enabling them to make prompt and regular deliveries of their product destined for European consumption.

Improves The Sight.—A handy aluminum pocket microscope is being introduced to fruit growers and florists by the firm of Stone & Wellington, of Toronto. These microscopes are made of aluminum and magnify four and a half times. A large number of them have been sold to farmers who find them useful in examining seeds and grains. Florists and growers use them in examining plants and trees for insects, and teachers and scholars use them in studying botany. The ordinary individual will find them useful in many different ways.

Use Corrugated Paper, it's tidy and quick.

The Biggs Fruit Box Press

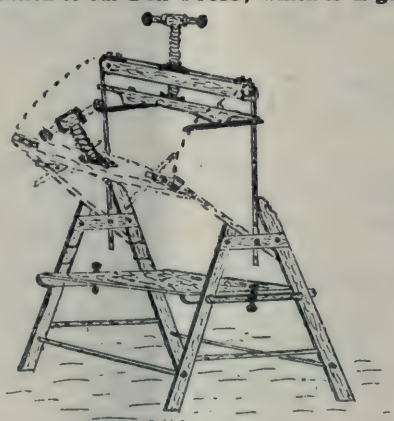
(Pat. applied for)

We have all kinds of Packer's Supplies.

Last month we directed your attention to our **Utility Fruit Box** with six reasons why it is the best.

This month we direct your attention to our **Box Press,** which is **Light, Strong** and **Serviceable.**

We have put this Press on the market to supply the wants of Box Packers.



This is the only Box Press that is adjustable to press Apple and Pear Boxes of any ordinary size.

A Good Press will save time.

It is Complete.

WRITE FOR PRICES

NOTE—Don't forget that success in the fruit trade depends upon a **Series of Goods: Good Fruit, Good Boxes, Good Packing,** and **Good Tools** will assist you in this. Why not have these **Tools?**

The Biggs Fruit and Produce Co., Limited, - Burlington

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

The Canadian Horticulturist

SEPTEMBER, 1905

VOLUME XXVIII NUMBER 9

HOW TO FORECAST FROSTS

J. B. REYNOLDS, O. A. C., GUELPH, ONT.

IN districts where the cultivation of fruit, flowers, or vegetables, is highly specialized, it becomes important to possess means of forecasting frost at critical times during the growing season and of preventing injury from low temperatures. This article is written with the object of giving some practical suggestions on these matters.

TOPOGRAPHIC.

Land, bordering on the water front is less liable to extremes and to low dips of temperature during the growing season than inland districts. This is one of the reasons that the best fruit sections are found by the water. Apart from the steadying influence of the water in lessening the chance of damage, frost is essentially a question in air drainage.

In a given district, the spot where night frosts are most likely to occur is the one with the lowest elevation. There is a case in point along Lake Ontario east of Stony Creek. From the lake back to the mountain there is a belt of land with a topography similar to the illustration, Fig. 1. On the side of the mountain there is a terrace, at A, where plums and pears are successfully grown. From the foot of the mountain the ground slopes gradually as at B. There grapes and peaches are grown. At C is a depression, from which the ground rises both toward the lake and toward the mountain. Experience has shown that fruit growing is much more precarious at C than at A or B. The reason is found in the topography in spite of the greater nearness of C to the water. At night, the cold, heavy air drains away from the mountain side toward C. If there were no rise of ground as at D, the air would drain to the lake, and C would be as immune from frost as A or B. But on account of the peculiar slope of the ground the cold air from the mountain side lodges at C, and here the lowest night temperatures are likely to be found.

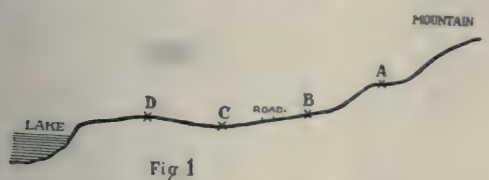


Fig 1

ATMOSPHERIC.

It is frequently possible to forecast frost from the appearance and condition of the atmosphere toward the afternoon. After a north wind has been blowing, with a clear or clearing sky, there is likely to be a considerable fall of temperature. Specifically, a clear sky, and a still, dry air, are favorable to frost. Conversely, if the sky is cloudy, or the wind high, there is less chance of a fall of temperature.

Given a still air and a clear sky, the humidity of the air, the amount of moisture in it, is the chief factor in controlling the night temperature. The temperature will

fall rapidly until dew begins to gather, at which point a further drop in temperature is prevented or retarded by the condensation of moisture. The dew point, therefore, that is, the temperature at which dew begins to gather, is a good indication of the probability of frost. If the dew-point is 40 degrees F. or above at sunset, there is not likely to be frost that night. If, however, the dew-point is below 40 degrees, precautions should be taken to prevent the injury of tender flowers, vegetables, or fruit buds.

FINDING THE DEW POINT.

Following is a method for determining the dew point by means of the wet and dry bulb thermometers or sling psychrometer: Two ordinary all-glass thermometers, with cylindrical bulbs, are strapped securely to the edges of a thin board about 12 inches long and two and a half inches wide, so that the bulbs project below the board. About the bulb of one of the thermometers one fold of a fine piece of cotton or muslin is wrapped closely and tied tightly at the top. To use the psychrometer the covered bulb should be moistened with water, and by means of a cord fastened to the top of the board. The psychrometer is swung to and fro for a minute or so in the shade in the outside air, until the reading of the wet bulb is stationary. The two thermometers should be read quickly after the swinging ceases and the readings recorded. The depression of the wet bulb reading below that of the dry is the amount of cooling produced by evaporation and indicates the humidity of the air. From these readings the dew point can be determined from the table given below.

To illustrate the use of the table: Suppose that the air temperature, the dry bulb, reads 55 degrees, while the wet bulb reads 47 degrees, a depression of 8 degrees, the table gives a dew point of 39 degrees. If this condition exists at sunset, with a clear sky and little or no wind, there is likely to be frost.

THE ELECTRIC ALARM.

Fig. 2 illustrates a simple and inexpensive arrangement for giving warning when a certain temperature, say 32 degrees, has

DEPRESSION OF THE WET BULB THERMOMETER.

Thermometer Dry-Bulb	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°
65 deg.	..	..	..	..	..	..	..	..	..	..	..	..	40
64 deg.	..	..	..	..	..	..	..	..	..	..	..	41	39
63 deg.	..	..	..	..	..	..	..	..	..	..	42	40	38
62 deg.	..	..	..	..	..	..	..	..	..	..	41	39	37
61 deg.	..	..	..	..	..	..	..	..	..	42	40	38	35
60 deg.	..	..	..	..	..	..	..	..	..	41	39	36	33
59 deg.	..	..	..	..	..	..	..	..	42	40	38	35	32
58 deg.	..	..	..	..	..	..	..	..	41	39	36	33	30
57 deg.	..	..	..	..	..	..	..	41	40	37	35	31	28
56 deg.	..	..	..	..	..	..	..	40	39	36	33	30	26
55 deg.	..	..	..	..	..	..	41	39	37	34	31	28	25
54 deg.	..	..	..	..	..	..	40	38	36	33	30	27	23
53 deg.	..	..	..	..	..	41	39	37	34	31	28	25	20
52 deg.	..	..	..	..	..	40	38	36	33	30	27	23	18
51 deg.	..	..	..	..	41	39	37	34	31	28	25	21	16
50 deg.	..	..	..	..	40	39	37	33	30	27	23	19	14
49 deg.	..	..	..	41	39	37	34	31	28	25	21	17	11
48 deg.	..	..	..	40	38	36	33	30	27	23	19	14	9
47 deg.	..	..	41	39	37	32	29	25	22	19	17	12	6
46 deg.	..	..	40	38	36	33	30	27	24	20	15	10	3
45 deg.	..	41	39	37	35	32	29	26	22	18	13	7	-1
44 deg.	..	40	38	36	33	30	27	24	20	16	11	4	-5
43 deg.	41	39	37	35	32	29	26	23	19	14	8	1	-9
42 deg.	40	38	36	34	31	28	25	21	17	12	6	-2	-15
41 deg.	39	37	35	33	29	26	23	19	15	9	3	-6	-22
40 deg.	38	36	33	29	26	23	19	15	9	3	-6	-22	..

been reached. It consists of a thermostat, an electric battery, and an electric bell. The thermostat is provided with a metallic strip clamped at one end. A change of temperature causes a bending of the strip so that it touches the point of an adjustable screw and makes electric contact. The thermostat should be placed outside, while the battery and the bell may be placed in the bedroom. As soon as the temperature outside falls to 32 degrees the thermostat makes the circuit and rings the bell. The rest depends upon the man who is rung up.

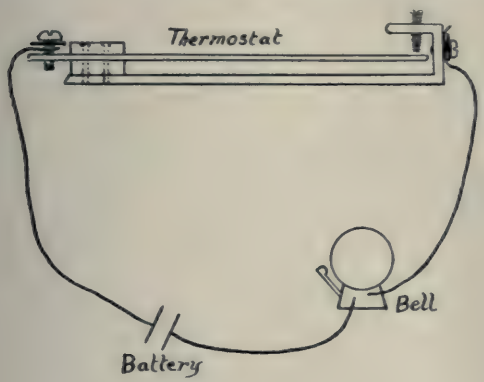


Fig. 2.

There are several practical methods of preventing frost, or if frost has occurred, of preventing fatal injury to plants. Among these methods a few of the more important may be mentioned:

1. WARMING THE AIR.

A large number of small fires, properly placed, will raise the temperature of an orchard or garden several degrees. Under this head various methods have been tested in California, and the best has been that of suspending wire baskets a few feet from the ground, each holding several pounds of charcoal or other suitable fuel. The baskets may cost 10 cents each, and if 40 baskets were used per acre, the fuel would cost $2.50 or $3.00.

2. PREVENTING RADIATION.

A cloudy sky at night is often effective as a prevention of frost. Adopting this idea, the fruit grower may create clouds of smoke in the orchard by setting fire to previously prepared smudge piles, consisting of damp straw or strawy manure. The effect of both of the above methods will depend upon the existence of air currents. For best effect the air should be still.

3. WATERING TREES AND PLANTS.

Injury from frost may often be prevented by sprinkling. This, of course, is practicable only where there are waterworks, and then only on a small scale, but may be used for gardens and flower beds. This should be done in the evening before frost is expected. If, however, no precautions have been taken and plants have been frozen, fatal injury may often be prevented by sprinkling very early in the morning before the temperature begins to rise—before sunrise. It is believed to be the rapid rise of temperature before the injured cells have time to readjust their functions, that causes injury. The blanket of water prevents the rapid heating.

It may be said in conclusion, going back to the question of forecasting. that the daily forecasts published by the weather bureau at Toronto should be followed closely. Besides being published in the daily papers, these forecasts may be secured by telephone from the nearest telegraph office. With the extension of rural telephones the important service rendered by the weather bureau may be brought within reach of every rural district in Ontario.

Power Spraying.—With the advent of the power sprayer in the course of a year or two we will have these power machines working in sections where a few thousand trees can be found within a square of six to eight miles, just as we have threshing machines working to-day.—(Frank J. Baker, Georgetown, Ont.

THE SHIPMENT OF FRUIT IN COLD STORAGE

J. F. SCRIVER, FRUIT INSPECTOR, MONTREAL, QUE.

ONE would hardly believe the amount of loss sustained by shippers through their fruit landing in poor condition. There has been a great deal of nonsense written about cold storage on vessels by people who never took the pains to enquire or examine into the subject for themselves. It was once thought, and some shippers will still argue, that the bulk of the damage to the fruit in shipping is the result of poor storage on the vessels. I contend and can prove that if fruit, apples especially, are picked and packed properly and placed on the steamer in good condition that over 90 per cent. will land in good condition.

BEGIN RIGHT.

In considering a system of cold storage for fruit we must begin at the right end where the fruit starts on its long journey to market. If apples are picked and allowed to remain in piles, exposed to the sun and rain for days before packing, or if packed immediately and then barreled and left in the orchard exposed to the weather, the most perfect system of cold storage in the world is not going to make those apples land in good condition in the Old Country.

Inspectors at Montreal take the temperature of the fruit in barrels or boxes before loading, and have often found the thermometer 10 degrees, yes, sometimes 15 degrees, higher in the package than the outside temperature. On opening some barrels we could feel the heat rising two feet above the barrels. Now, is it reasonable to suppose that, even with the best of cold storage, these apples are going to reach the British markets in good condition. It is a common fault with all of us to blame somebody else for our misfortunes, when they are really caused by our carelessness. If fruit shippers, instead of blaming the cold storage in cars or steamers for their losses, would change their method of handling fruit, pick and pack properly and load the fruit in cool condition they would find their losses greatly reduced. If we had large cold storage warehouses at central shipping points where fruit could be placed and thoroughly cooled before loading on cars the loss would be reduced to a minimum.

Here are a few rules to observe when exporting fruit, especially apples: Do not allow your fruit to become ripe before picking. Do not allow apples to remain in piles in the orchards. Do not allow apples to remain in barrels exposed to the weather Do not put windfalls in even No. 2 apples. Have the fruit cool before loading.

I do not think it is possible for any shipper to observe all these rules, the way business is conducted at present, and the only remedy I see is cooperative packing and shipping of fruit. I hope to see the bulk of the fruit handled in this way within a few years.

FRUIT GROWING IN GREAT BRITAIN

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA, ONT.

DURING my recent visit to the old country many interesting observations regarding fruit and fruit culture were made.

Strawberries had been in season but a few days when we reached Ireland on June 24, and after being nine days on a steamer we were very ready to test this luscious fruit. The first strawberries tried appeared to confirm an impression obtained at the close of the strawberry season in a previous year, namely, that the old country strawberries, though high in flavor, were lacking in sprightliness and character. We were

disabused of this impression, however, after eating the Royal Sovereign, which, undoubtedly, is one of the most delicious berries in existence. We should like to have had some Wm. Belt or Marshall for comparison.

On looking into the matter and visiting the plantations where the fruit was grown, it was found, as in Canada, that the varieties of poor or medium quality are often the most productive, and to the average grower the most profitable, hence one has to test Royal Sovereign or some other good variety to get a right idea of what can be produced. The best berries are also very large, no doubt principally due to the fact that the plants are grown on the hill system, the plants being from 22 to 24 inches apart each way. From three to five crops are usually taken from a plantation. The price of strawberries was, on the whole, lower than in Canada, varying from 2d. to 6d. per box.

Everybody eats gooseberries out of hand when the season is on, and it does not take long for a Canadian to get to like this refreshing pastime. A morning visit to the garden in gooseberry time is a very popular kind of entertainment. It is a fine sight to see these immense gooseberries grown on large areas after being accustomed to a plantation of Downing in Canada. Raspberries and currants were also abundant.

Two visits were made to the principal fruit districts of Ireland, in Armagh county. Apple orchards of 20 acres are not uncommon here, and many young trees are being set yearly. The fruit growers of this district are confident that it will not be long before Canadian or American apples will not be needed in Ireland, and certainly if the quality and appearance of the fruit were as good as our own, and the crop as certain, we should have this fear, because of the large number of trees which are being set. It is certain, however, that Canadian fruit, of the best quality only, will in the near future command a good price, as the people prefer their home-grown fruit for culinary purposes, owing to its greater acidity, and it is naturally in better condition when bought. We were told that last year when apples were so plentiful in Ireland they were shipped to Glasgow and the returns were very fair. The Bramley Seedling is the most popular variety in the north of Ireland, as it succeeds well.

A visit was also paid to Kent, one of the best fruit districts of England, where large areas are devoted to both large and small fruits. The impression obtained on seeing the apple orchards both in England and Ireland is that the trees in general are planted too close; that fine fruit is produced while the trees are young and the soil kept cultivated, or while other crops, demanding cultivation, can be grown between the trees; but that as soon as the trees become older and it becomes unprofitable to grow other crops on account of the shade from the apple trees, the fruit does not get sufficient sunshine and, we should think, would not produce good fruit. In Canada trees of the same age would be producing the most profitable crops, although, unfortunately, trees are often too close with us. The bad effects of too close planting could be avoided by timely thinning out the trees, but this, if done at all, is usually left too long.

Many trees in the old country are, however, grown on Paradise stock and become profitable early. There are many orchards which are judiciously planted or thinned where the large trees have plenty of room and clean cultivation is adopted, and where good fruit is produced.

The Schools of Horticulture at Swanley, Kent, and at Reading were visited for the purpose of seeing the character of the work done and the methods employed. Both of these colleges are in a very flourishing condition. A visit was also paid to the estab-

lishment of Messrs. Sutton & Sons, Reading, Eng., where many interesting things were seen. At the Woburn Fruit Experiment Station, Ridgmount, which was also visited, there is a series of experiments in fruit culture which is quite unique. The experiments appear to be very carefully conducted, and the results are striking.

In Ireland the Department of Agriculture is doing splendid work, and through the countesy of Sir Horace Plunkett every facility was given me to gain an insight into the methods employed by the Department and the work being done. The apple crop in Great Britain and Ireland is light this year owing principally to severe frosts during the blossoming season, hence good Canadian fruit should sell at profitable prices.

THE HANDLING OF THE APPLE CROP*

G. HAROLD POWELL, U. S. DEPT. OF AGRI., WASHINGTON.

A FARM storage or local warehouse would overcome some of the practical difficulties now experienced in handling the fruit crop. The average fruit grower cannot store the fruit quickly after picking in a distant warehouse. He does not employ enough labor, nor does he grow sufficient fruit that ripens at one time to make a carload quickly. A common practice, especially among apple growers, is to hold the fruit in the orchard until a carload is ready for shipment, or the entire crop of fall and winter fruit may be picked before the packing is begun. Under these conditions the delayed fruit ripens rapidly and the apples enter the warehouse in all stages of maturity. These naturally break down at various times in the storage season. On the other hand, if the grower sells at the harvesting time he is obliged to accept the price fixed by the temporary condition of the fruit trade. From the business standpoint, it may not be advisable for the average farmer to attempt to store his own fruit and sell it later in the season, but for the specialist in fruit growing, the local warehouse provides a means of holding the fruit in prime condition during the warm fall weather and places him in the most favorable position to sell it later in the season either to a buyer or on the general market.

The farm or local storage house is of still greater importance to the grower and shipper of perishable fruits, such as the small fruits, the peach, and the pear, in providing a means of properly preparing the fruit for long distance shipment. Many of the losses which occur while fruit is in transit are due to the ripening and to the development of diseases that take place before the temperature of the car is sufficiently lowered, either by ventilation or by the melting of the ice. It is not uncommon for peaches to reach the market with a loss of five to 30 per cent. in the top layers of the car. This is due to the unequal distribution of the temperature in the average refrigerator car and to the small order of ice.

From extended experiments in shipping peaches from southern to northern markets in 1904, the United States Department of Agriculture found that the fruit could be landed in perfect condition and that it could be held in the car a much longer period on arrival at destination when it had been cooled to about 40 degrees F. quickly after picking and before loading in the refrigerator cars. The same principle will apply to the export shipment of peaches, pears and early apples, and to the distant shipment of small fruits.

* Extract from an address delivered at the last annual meeting of the Ontario Fruit Growers' Association.

Shipping Fruit in the Niagara District

The shipping station of Mr. E. D. Smith, of Winona, is here shown with ventilated cars being loaded. This station is equipped with a cold storage plant and annually handles immense quantities of all kinds of fruit. On the left may be seen Mr. Smith's new jam factory in course of erection. This building has been completed since the photograph was taken.

The principle that we wish to emphasize by this phase of the discussion is that fruits of all kinds, whether they are intended for storage in warehouses or, like the perishable fruits, are shipped to distant markets, need to have their ripening processes checked as soon as they are picked, as the ripening that takes place in the orchard or in transit is at the expense of the keeping quality and value on the market or in the warehouse.

A phase of the question that should logically precede all others is the care in handling and preparation of the fruit. The most serious rots in northern apples and pears in transit and in storage are often the direct result of bad handling and packing on the part of the fruit grower or dealer, coupled with a delay in storing the fruit, during which time the rots enter the bruised parts and develop.

The common soft storage rots of apples and pears, which are caused by moulds, do not affect unbruised fruit. They gain entrance only when the skin has been broken by rough picking, or sorting, or by the movement of the fruit in loosely packed packages during shipment, and kill the fruit prematurely. On the other hand, an unbruised fruit lives until it has spent its vital forces through natural chemical and physiological changes, when it dies from old age.

Not in the history of commercial fruit growing has the influence of the careful preparation and handling of fruit on its keeping quality been emphasized as it was at the horticultural exhibit of the World's Fair at St. Louis. Several of the states kept the tables well supplied with magnificent apples of the previous year's crop throughout the exposition. The principal part of the fruit exhibit to September 15 was made up of fruit of the crop of 1903. There was a wide variation in the keeping quality in the fruit from different states, and, in my judgment, this variation was due more to the preparation of the fruit for storage than to the conditions in the particular section in which the fruit was grown.

We do not underestimate the influence of geographic and climatic conditions on the keeping of varieties, and we do believe that the success that was achieved by the various localities in showing their fruit pro-

ducts at the exposition was due not only to the natural resources of the locality, but even more to the skill and care of the men who handled the fruit from the tree to the show tables. A similar exhibit of storage fruit could not have been made at the Columbian Exposition in 1893. The progress since then has been due not so much to the methods of cold storage as to the fact that we have learned that fruit should develop full size and high color before picking, that in the handling it should be treated like a delicate living body, that heavy wrapping protects it from bruising, that it should be packed in small packages, shipped immediately to a warehouse and stored in a temperature of 29 to 31 degrees F. We need to apply the lessons of this great exposition to the handling of fruit for commercial purposes.

COOPERATION

MAXWELL SMITH, FRUIT INSPECTOR, VANCOUVER, B. C.

COOPERATION is a uniting of efforts for mutual profit and improvement without injury to anyone, and not a combining of forces to crush competitors for the purpose of building a temple of fortune on the ruin of a weaker rival. True cooperation cannot fail to produce the most salutary effects upon those who profit by its practical operations and to raise its votaries to a much higher plane than can possibly be obtained under the ordinary competitive system. It is not a means to an easy living without the toil of hand or brain, but provides a just remuneration for both, and gives men a clearer conception of the innate dignity of honest labor. Cooperation does not require the subversion of law or existing institutions, the annihilation of the capitalist or the overthrow of labor unions and other organizations. It encourages individual efforts by rewarding according to merit and pays capital its reasonable hire, but the profits go to the producer and to the consumer.

A cooperative organization cannot be made proof against wrong doing on the part of its members. It is subject to all the dangers of mismanagement the same as any other business concern. Cooperation is of paramount importance to the horticulturist. As we travel about the country many worthless orchards arrest our attention. The owners are often discouraged and disappointed men, who have practically lost faith in the fruit business. These conditions may be the result of planting varieties that are not suited to the locality, want of proper cultivation of the soil, the lack of proper attention to spraying, or the absence of good judgment in pruning and training the trees.

PROFIT BY OTHER'S MISTAKES.

But, whatever the cause may have been, the ugly fact stares us in the face, of time, money and toil wasted and only a miserable failure as the result. How often have we seen this in the case of pioneers, while those who come later, plant and raise beautiful orchards that pay the owners handsome profits; and people wag their heads and sneer at the pioneer in his misfortunes, forgetting that by his mistakes and failures he may have saved his new neighbor from a like fate and made the latter's success possible.

Strive to profit by the experience and research of those who have been successful in their particular undertakings. Seek to emulate the example of those who walk the highways of success in your chosen calling. But while our eyes are fixed upon the few who have been pre-eminently successful, we must profit also by the experience of those who have failed. Let us be honest enough to acknowledge the debt which we owe to them.

Have patience with the man who has made mistakes and despise not the counsels of your neighbor who has failed—he may have paid the price of your successes—but seek to avoid the errors which resulted in that failure, and if he still remains, cooperate with him for your mutual advantage and the world will be better for your both having lived in it.

Fruit growers should come together and mutually profit by past experiences, observations, successes and failures; cooperate in determining what is best to plant; cooperate in methods of planting, pruning, spraying and cultivating; cooperate in picking, sorting and packing; cooperate in shipping and marketing; cooperate in maintaining uniformity of prices according to grade, so that every man may receive the just reward of his labor.

TRIAL SHIPMENTS TO THE WEST

GOOD work is being done by the St. Catharines Cold Storage and Forwarding Co. in the matter of experimental shipments of small fruit and tomatoes tc Winnipeg. An attempt is being made to have two cars go each week. "This year the work is being done to supplement that done last season by Prof. Reynolds, of the O. A. C., Guelph," said Mr. W. H. Bunting, of St. Catharines, honorary president of the Ontario Fruit Growers' Association.

Different types of cars fitted with different cooling systems are being tested. Mr. W. W. Moore, of the Markets Division, Department of Agriculture, Ottawa, has promised to furnish thermographs for the cars. "The Provincial Fruit Growers' Association," said Mr. Bunting, "purposes sending along practical men to superintend the shipments, watch conditions en route, and sales in Winnipeg.

"A new package is being tested for peaches and the finer fruits. The dimensions are 20 x 14 x 4½ inches, and four small baskets can be placed in each of these. When full of peaches the total weight is about 18 pounds. At present it is being used for western shipments, but we intend to introduce it on the Ontario markets also for the extra fine fruits."

The first shipment was made August 18, but owing to the light tomato crop and to the fact that some factories are paying 30 cents per bushel it was difficult to obtain sufficient tomatoes to make up the load.

"The packing," remarked Mr. Robert Thompson, "is being done in boxes chiefly after the California style. This is strictly a business deal of our own. Express charges are $2.40 per 100 pounds, whereas by sending a carload we get the 66 cent rate. In addition to this we have to pay for the icing. Past experience has shown that the heavy express charges run away with the profit.

"We are trying the fancy packages to find out whether it will pay to put them on the western market. In Toronto and Montreal it pays early in the season when fruit is scarce, but later on the cheaper package is necessary. As soon as the consumers are educated to pay the price, the growers will put the fruit in the proper packages."

I have observed that the bark of your trees in Canada is much rougher than with us in the Eastern States. It must be due to the colder climate.—(A. N. Brown Wyoming, Delaware.

Bandages on Trees are a good means of fighting the canker worm, provided they are properly looked after. Where they are left on pear trees blight sometimes starts under the band.—(M. Pettit, Winona, Ont.

Picking and Handling Apples

W. H. DEMPSEY, TRENTON, ONT.

The picking should be done only by very careful hands. No apple, no matter how firm, has been found that will not show marks of rough handling, revealing brown spots and giving it the appearance of a windfall. The baskets should be lined with heavy burlap to keep the fruit from bruising against the sides, and if the fruit is to be kept by the grower until shipped to market I find it better to place them in barrels in a cool place the same day they are picked. They should not be touched until ready to pack for shipping.

A great deal of choice fruit is destroyed by too much handling, placing them on the packing table, putting in baskets, then into the barrel where they are allowed to remain in the orchard until cold weather, then placed in the storage building, emptied on the packing table, sorted and packed for shipping. They are more or less damaged by so much handling.

Wood Ashes in the Orchard

PROF. R. HARCOURT, O. A. C., GUELPH.

How heavily should wood ashes be sown in orchards ?—(R. Robinson, St. Catharines.

It is estimated that 20 crops of apples will remove more than twice as much nitrogen, one and a half times as much phosphoric acid, and nearly three times as much potash as 20 crops of wheat. A crop of wheat will remove about 40 pounds of potash per acre, therefore a crop of apples will take 100 to 120 pounds of potash per acre from the soil. As ashes contain five per cent. of potash, it would require one ton of ashes to supply that amount of potash removed from the soil by one crop of apples. This may be looked on as the minimum amount of ashes for an orchard in bearing. The best time for the ashes to be applied is in the early spring or summer. The potash in them is immediately available and may be taken up by the plants at once.

As to whether they will hurt a growing crop, such as vetches or crimson clover, if applied when the leaves of these crops are dry, ashes might sift through to the ground readily and no harm might be done. If they are applied while the leaves are wet they would seriously burn and destroy the leaves. If the cover crop is plowed down in the spring the wood ashes might very conveniently be plowed down with them. A good plan is to cultivate the ashes into the soil and not plow them under. Although the potash of wood ashes is soluble and immediately available to the plant, there is not much fear of serious leaching of this constituent from the soil. Nature has provided means by which it is held in the soil, and, therefore, not subject to loss by leaching, as is nitrogen.

Planting Peach Trees

"HOW far apart do you plant your peach trees?" was asked Mr. Adolphus Pettit, of Grimsby, recently by an editorial representative of The Horticulturist. "In the past," replied Mr. Pettit, "I have planted them 18 to 20 feet apart, but I find that rather close on my soil which tends to luxuriant growth.

"Were I setting out an orchard now I would set the trees 25 feet apart to allow a free circulation of air and plenty of sunlight. This would also allow lower headed trees. Where trees are planted too close together they grow high and the lower branches die. When planted 25 feet apart berry bushes can be grown in between, which I have found is advantageous."

In this part of the township apples are the main fruit crop, and the price has been so low that some are cutting down their orchards.—(N. B. Hagar, Allanburg, Ont.

The Wilder Pear

LINUS WOOLVERTON, POMOLOGIST, ONTARIO DEPARTMENT OF AGRICULTURE.

The Wilder is a valuable pear for either home use or near market, ripening about the middle of August. It takes its name after the late venerable Marshall P. Wilder, the honored president of the Massachusetts Horticultural Society. It was not originated by him, but was a chance seedling found growing on the north shore of Lake Erie, and was named in his honor. When ripe the coloring of this pear is a deep red on yellow ground, and shows up very attractively when placed on sale. Many of the early pears, notably the Summer Doyenne, ripening in July, the Manning's Elizabeth and the Dearborn's Seedling, ripening in August are too small to bring much money, but the Wilder is of fairly good size, often measuring three inches in length by two and a half in breadth. The quality is excellent, the flesh tender and fine grained, and the flavor sweet, aromatic and very pleasant. I would advise growing this pear on the quince, judging by my own experience at Maplehurst, where the dwarf trees are doing well.

IMPORTANT BULLETINS

AN interesting bulletin has been issued recently by the New York Agricultural Experiment Station treating on the plant-food constituents used by bearing fruit trees. Investigations were made to ascertain the amounts of nitrogen, phosphoric acid, potash, lime and magnesia used in one growing season by growing fruit trees. One to three typical representatives of standard varieties of apple, peach, pear, plum and quince were selected. The fruit, leaves and new growth were carefully gathered and analysed.

It was found that peach trees used the most plant food per acre. Apple and quince trees were about the same and came second, while plums gave much the same results and used less plant food than the other trees.

The proportions used by the different trees were approximately as follows: Nitrogen, 1 lb.; phosphoric acid, .27 lb.; potash, 1.14 lbs.; lime, 1.35 lbs.; magnesia, .45 lbs. In the fruit, quinces used the most nitrogen, with apples, peaches, plums and pears following in order. Potash was present in the fruit in larger quantities than any other food constituent. Nitrogen was found to be about half as much as potash.

Plant food was more abundant in the leaves of the peach than in those of the other trees, after which came the apple, quince, pear and plum trees in the order given. Lime was present in the leaves, and in the new wood in greater quantities than any

other food. In new wood the amount required per acre was greatest in the case of peach trees. Write to Geneva, N. Y., for Bulletin 265.

APPLE CULTURE DISCUSSED.

In Bulletin 144, of the Ontario Agricultural College, Guelph, "Apple Culture" in its more important phases is dealt with rather exhaustively. After referring to the demand for nursery stock, Professor Hutt gives some valuable advice regarding the selection of varieties suitable for different sections and classifies them into those suitable for market and those for home use, giving a list of summer, fall and winter varieties recommended by the Ontario Fruit Experiment Stations.

The location, exposure, windbreaks, preparation of soil, arrangement of trees, distance apart, cultivation, cover crops, grafting, pruning, harvesting, grading, marketing, storing and practically every operation connected with apple growing are fully dealt with. Professor Hutt concludes his part of the bulletin by a calendar of operations which the orchardist should pay attention to each month of the year.

A few pages are devoted to the injurious insects which trouble the apple orchard. Professor Lochhead classifies these into insects affecting the roots, insects affecting the trunk, twigs, or branches, insects attacking the buds and leaves, and insects attacking the fruit. The pests commonly found in Ontario orchards and the most approved methods of combatting each are fully dealt with.

Fungous diseases are discussed and classified. The preparation of the best insecticides and fungicides, a few hints on orchard spraying, and a complete spray calendar for an apple orchard completes this very excellent bulletin. Every orchardist should write to the Ontario Department of Agriculture, Toronto, for a copy.

A CORNELL BULLETIN.

Another bulletin of special interest to orchardists is No. 226, entitled "An Apple Orchard Survey." The purposes of the survey were to correlate soil characters with orchard conditions, to compare successes and failures and ascertain underlying causes, to investigate methods of orchard management and determine the influence of each, and to collect data on practical apple-growing which would furnish indisputable evidence to assist horticultural instructors.

These purposes were well carried out in a thorough examination of numerous orchards in Wayne county. Every branch of work connected with the production of the apple crop receives due attention and increased value is given to the work by the use of numerous illustrations. After careful investigation it was concluded that tillage, fertilization, pruning and spraying are the chief factors that enter into good care of an orchard, but that one or more of these may be omitted for a time without serious results. To some extent tillage may replace fertilizers; a thrifty orchard may resist the attacks of disease; or some seasons may find few insects and spraying can be discarded. However, the most successful apple grower is the one who keeps a proper balance between all four agencies. He must also study and learn something about the life processes, about insect and fungous diseases, and about drainage and other soil problems. This bulletin is issued by Cornell University, Ithaca, N. Y.

Spraying is more generally practised now than a few years ago. Growers are beginning to see the need of better spraying, cultivation and general care of their orchards. —(A. E. Sherrington, Walkerton, Ont.

My peach trees have been badly troubled with the borer. I find the only way to keep them in check is to go around with a good stiff knife with a sharp turned up point and dig them out.—(C. S. Nelles, Grimsby, Ont.

NEW METHODS WITH STRAWBERRIES

ALTHOUGH the ordinary methods adopted in strawberry growing are according to the matted-row system and the planting of a new patch each season, there are growers who practice novel methods and who are not afraid to recommend them.

"Strawberries grown in hills," said Mr. W. A. Best, of Picton, "give good returns. The runners are kept cut off continually, and as a result only one strong healthy plant is left. This method, of course, requires more labor than is entailed by the ordinary culture, but the quality of fruit amply repays the gardener. An extra crop of only number one fruit results and a better price is obtained. Besides, the patch need not be renewed every season. Cultivation can be done both ways.

"In the matted row the runners take away the strength from the fruit, and as a consequence fruit of poor quality is harvested. Cultivation can be done only one way, and that only for the first season. The weeds are sure to come and compel plowing down after one crop is taken."

ANOTHER METHOD.

Some growers take several harvests from one planting with the matted row system. "I have taken six fruitings in eight years off the same ground," said Mr. J. M. Metcalf, of Grimsby, to The Horticulturist. "The ground was put into good condition and as free from weeds as it was possible to have it before setting out the plants. When the crop was harvested the second year the whole patch was gone over with a mower. Then the plow was used, leaving about 10 inches of the old row bottom. After the plowing a good harrowing was given to tear it up well and destroy most of the weeds. The hoes were then used to complete the cleaning and the patch was treated as if newly set out in the spring.

"By this method it appeared as if the plants were all destroyed, but it seemed to set the young suckers to more vigorous growth. The quality of fruit on the sixth harvest was just as good as on the first. This process would not be thoroughly successful with all varieties. I have, however, had success with Jessie and Michael's Early. The plants must be strong growers, which will soon smother their own row and make good growth before winter sets in."

Small Fruit in the Orchard

ORCHARDISTS cannot afford to devote their land wholly to orchard purposes for the first few years after the young trees are set out. Different methods of using the ground are adopted in different sections. Some grow hoed crops, others grain and others some of the small fruits. The growing of grain is not to be commended, but the choice sometimes depends on the nature and condition of the soil.

"Where my trees are small," said Mr. J. M. Metcalf, of Grimsby, to The Horticulturist, "I always double crop. I like to have some of the small fruits, such as raspberries or blackberries there because the bushes prevent the snow from blowing away in the winter and so serve as a protection to the fruit trees. Besides the berries get the benefit of partial shade, and that suits them best. Too much shade would tend to make them soft and mushy, but the shade afforded by an ordinary orchard improves the quality.

"I sometimes use, potatoes, sugar beets, carrots, cabbage, etc. Corn is unsatisfactory, as it requires too much moisture late in the season when the trees need all they can get."

If I were going to plant a vineyard I would set out Concords. They are hardier than any other variety, seldom missing a crop, while the quality is of the best.—(Adolphus Pettit, Grimsby, Ont.

SMALL FRUITS FOR THE CANNERIES

FRUIT growers well know the difference in quality of different varieties of the same fruit. In berries this is especially noticeable. The tendency, however, with most growers is to buy the plants which they believe will produce the largest berry in the greatest quantity. This may seem plausible, but although size and quality are desirable features in a fruit the quality should be the special characteristic sought.

"The man who is likely to buy the fruit," said Mr. Wellington Boulter, of Picton, to a representative of The Canadian Horticulturist who visited his canning factory, "should be counselled every time by a grower before he purchases his fruit-bushes or trees. There are many varieties of the different fruits which all go to mush when canned. These varieties do not ship well. The tree agent sells to make money, but the grower also buys to make money. Therefore, he should have only the desirable and saleable sorts. The Cuthbert raspberry is the best. We often pay six cents per box for them when Schaffer only brings four cents. In strawberries we have paid one cent per box more for the Wilson than for other varieties. It is not as large as many of the others, but it is firm and purple or bright red in the centre, and it is quality that counts.

"In every case," continued Mr. Boulter, "the demand is the first thing to be considered. The fine arguments of fruit-tree sellers who claim certain varieties are the best simply because they want to get rid of their stock should not influence the buyer. The man who buys the product should be consulted and the recommendations of the agent ought not to be given too much weight."

White Grubs in Strawberry Plants

PROF. F. C. SEARS, WOLFVILLE, N. S.

Last season I planted about 200 strawberry plants. They were not strong and many wilted. This season they have practically all died. On examination of the roots I found a large white grub, which no doubt accounts for the death of the plants. What can be done to exterminate the pests from the soil? Will it be safe to set out new plants in the same soil this season?—(W. R. Wonham, Richelieu Village, Que.

These large white grubs are the larvæ of some kind of "June bugs" (some species of Lachnosterna), which live in the ground and feed upon decaying vegetable matter, especially barnyard manure. So far as replanting this same ground with strawberries this season is concerned I should advise strongly against it if there is any other land available. The particular "grubs" which have caused the damage this year will probably have changed to adult insects, but there will in all likelihood be a new crop ready to attack new plants.

As to ridding the land of these pests I would suggest fall plowing late in the season so as to throw up the grubs and expose them to the action of the weather. The object of doing the plowing late is of course to allow the insects no opportunity to readjust themselves for the winter.

Next spring I would use salty fertilizers, either wood ashes or muriate of potash, and if the soil needs nitrogen use nitrate of soda to furnish that, and lastly bone meal or some phosphate. In applying such fertilizers it is better to put on the entire lot at one time, as this makes stronger solutions in the soil water, which is unfavorable to the insect life of the soil or sometimes even deadly. If the land were treated in this way it should be perfectly safe to set strawberry plants on it in the spring, but I should consider it a very risky thing to reset this season.

Bulbous plants become sickly after being over fed. Starvation is the only remedy. Put them away to rest and merely give sufficient water to prevent total drying.—(A. J. Frost, Preston avenue, Toronto.

THE MAKING OF A SUBURBAN HOME*

S. SHORT, OTTAWA, ONT.

MOST city folk, at some period in their lives have a longing for country air and surroundings, a longing for freedom from city cares, for rest and quiet and a desire to dig in mother earth. This is a natural desire, and if gratified will, in many cases, result in indigestion cures, the upbuilding of shattered nerves and general good health. Visions of fresh eggs for breakfast, fresh vegetables gathered while wet with dew for dinner, and fresh berries for tea, all produced in the home, poultry yard and garden, furnish powerful arguments in favor of going to live in the suburbs, not to speak of the pleasure of sowing the seed and watching the growth of the plants and giving them such attention that when the time of the harvest comes the product will be the finest in the country side.

Having, therefore, decided to invest in a piece of land with a view to making a garden, the first question to decide is location. I presume, of course ,that the owner intends to garden during his spare hours and go to the city daily. In that case I would recommend that he locate near the street car line if possible. That is, I would prefer to pay more for land, or be content with a smaller lot near the car line than a more distant location. There may be in the family some members who would not take to the suburban life with the same zest as the head of the house, and they should be considered. Besides, a back ache sometimes forces its attention on the enthusiastic gardener and it is desirable to get to the car with as little exertion as possible.

The best time to inspect the different locations is just after the snow has melted in spring time. You can then see the state of the roads and how the land is drained. This is important for sanitary reasons. If the home is located outside the city limits the owner has to devise and carry out his own sewage system, so a slight slope is a help for that purpose as well as for good surface drainage. A slope to the north or

The Guelph City Hall as Improved

Excellent results would follow were more of our horticultural societies to follow the example of the Guelph Horticultural Society, which this year greatly improved the city hall and postoffice by placing handsome boxes in the windows. This work is appreciated by the thousands who pass these two prominent buildings.

*Extract from a paper read at the July meeting of the Ottawa Horticultural Society.

west is preferable, for then the snow in spring melts slowly and the plants seldom suffer by too early exposure or by making too rapid growth and injury from frosts.

If the owner intends to live all the year round in the suburbs it is absolutely necessary that the public highway to and from his home should be high, dry and well drained. There is nothing that will cause dissatisfaction with the location more quickly than to have to travel over wet, muddy roads.

The next point to be considered is how much land to buy. That depends on individual circumstances. Some have more leisure time and more money than others. If the purchaser can afford to keep a hired man and a horse an acre more or less will be of small concern, but if he intends to do the work himself one half to three quarters of an acre is ample and will give his muscular energies the fullest scope.

To the man with limited means who wishes to cultivate his own garden and attend to the numerous chores incidental to a country home there are good reasons for saying that half an acre is ample to occupy his spare time. Unless the lawn is kept nicely trimmed, the flower-beds kept free from weeds and the vegetable garden kept in thorough cultivation, the owner's reputation as a gardener will suffer, and instead of having a home and garden to be proud of and to be shown with pride to visitors, he very soon tires of gardening and his career in the suburbs soon ends. To keep half an acre in proper order and cultivation, to attend to the poultry, to do a little painting and fencing when necessary will take the average man three hours every working day from the time the spring work begins until the middle of August, when the weed season is practically over. During May, June and July the grass must be cut at least once weekly, the flower beds weeded and raked once a week; in fact, every inch of land under cultivation, to be kept properly, must have weekly attention.

My object in stating these facts is that they may perhaps be a help, to an intending suburbanite, in deciding how much land to invest in for garden purposes, so that even though land be low in price in the outskirts of the city, he will not undertake to cultivate too much, and his garden, instead of being a pleasure become a burden. Having purchased the land, the next step is to lay out the grounds and garden to the best advantage. Before planting a tree or choosing the site for the house, by all means have a plan drawn to a scale. Then you have before you on paper the details in full of the work to be done. I would suggest dividing the half acre in two parts. On one half put the house, driveway, lawn, flower beds, outbuildings and poultry runs and reserve; on the other the fruit and vegetable garden. The driveway may be placed between the house and the fruit garden and the house between the driveway and lawn, which ensures you from having the owner of the next lot building close to your house even though he builds on the line between the properties. A border for flowers may be made around the lawn. It should end parallel with the rear of the house and be divided from the land in the rear by a trellis made with poultry netting, on which grape vines may be grown to screen the poultry houses and runs.

FRUITS THAT MAY BE GROWN.

In nearly all parts of this province the following fruits may be grown: Strawberries, raspberries, currants, gooseberries, apples, plums, cherries and grapes. Before planting, a list should be prepared and submitted to any local expert who will willingly advise the best varieties. At the start only plant varieties that have been successfully grown in your neighborhood. Avoid experimenting until thoroughly established. The number of fruit trees and plants to

grow depends on the number of members in the family, the size of the garden, and individual preferences. One person likes strawberries, another prefers raspberries.

The small fruits and perennial vegetables should be grouped together. The fruit bushes may be planted next to the poultry runs, for then the fowls may be allowed to range through them without damage and to the advantage of both after the fruit has been gathered in midsummer. I would plant for a family of six persons two 40 foot rows of strawberries, 40 raspberries, six red, two white and two black currants, four clumps of rhubarb and 50 roots of asparagus. These should be planted in rows five feet apart the whole length of the garden to render easy cultivation by a Planet Jr. Cultivator.

If I were growing small fruit for market I would grow first the gooseberry, then black and red currants, and lastly strawberries and raspberries. Strawberries and raspberries must be gathered every other day or the fruit is spoiled, being over ripe, and the plants give up bearing. While it is a delightful task to gather three or four quarts of fresh strawberries or raspberries, it is most laborious and tiring to gather them by the dozen quarts. With gooseberries and currants there is a latitude of a week or 10 days in which to gather the fruit. The whole crop may be gathered at once and they will keep for a week. Raspberries and strawberries must be marketed at once or they spoil. Besides, gooseberries and currants are more profitable. A raspberry bush takes nearly as much space as a gooseberry, and a Downing gooseberry bush will bear annually 12 to 15 quarts and a raspberry two to three.

A Part of the Lawn and Hedge in Mr. S. Short's Garden, Ottawa.

This garden, only a small part of which can be seen, was one of the leading winners in the Lady Minto garden competition in Ottawa last year. The picture is interesting in that it shows what may be done in home-building from very rough beginnings. About 12 years ago Mr. Short purchased a block of ground at Rockliffe, in the outskirts of Ottawa. This land was in very rough condition, full of boulders and very uneven. Within a few years its owner has made great improvements. A splendid Norway spruce hedge, 250 feet in length, which was planted by the owner and personally tended by him, may be seen. It is one of the finest hedges in or about Ottawa.

Next to the ground occupied by the small fruits and perennial vegetables the annual vegetables may be grown in rows to permit the using of the hand cultivator. A well stocked vegetable garden should contain the following: Cress, radishes, lettuce, green peas and beans, beets, onions, carrots, parsnips, tomatoes, turnips, cabbage, cauliflower, cucumbers, squash, celery, corn and potatoes. All these may be grown readily in most localities, and the owner should grow such quantities of each as will suit the size of his family.

Late cabbage and celery may be planted in the ground occupied early in the season by the green peas, which will be done bearing when the cabbage and celery are ready to be put out. The squash may be planted near the compost heap or manure pile and trained to grow over it and hide an unsightly spot. Some flowering plants should be grown in the vegetable garden for supplying the table with cut flowers. This saves cutting those grown near the house for or-

namentation. All flowers and vegetables that need an early start should be grown in a hot-bed at home.

The principle of the proper management can be seen at a glance by visiting any gardener in springtime. In this way you can grow tomato, cabbage, cauliflower and celery plants and annuals that need an early start, such as aster, phlox, petunias, carnations, etc. This keeps down expenses and desirable varieties are ensured. Nor must the poultry be forgotten. For a family of six, 15 or 20 hens are enough. A cheap house, free from draughts, will do for them. Enclose the poorest ground for runs. They must be confined, but they should have at least 20 square feet for each fowl. Poultry netting is cheap and easily put up. Three runs are needed: one for the old fowl, one for the young, and a spare run.

A diary should be kept and a record made of the date of the last spring frost; the first fall frost; the dates of sowing the different seeds; the dates of their coming above ground; the date of the first flower blooms; the first and last ripening of the different fruits. This furnishes data to work upon in succeeding seasons.

EARLY FLOWERING BULBS

FEW plants give more beauty for the labor and expense involved in their culture than do the early-flowering bulbs. They are grown chiefly in Holland, but are easily handled in beds or borders in almost any garden. For best success it is well to prepare a deep rich bed in September and plant the bulbs four to six inches deep in these as early in the fall as they can be obtained. Most flower-growers have a few, but for a collection of numerous species there are not many who can present as fine a display as Mr. Thos. Bog, of Picton, Ont. "I get my bulbs direct from Holland," remarked Mr. Bog to a member of The Horticulturist staff, "and generally plant them in October. They must be planted when the ground is dry. If the ground is wet there will be no growth as the bulbs rot. It is essential that the beds be well underdrained. Sandy loam suits them best. They need frequent watering when growing and especially when in flower.

"I never let them go to seed, as that

Beds of Tulips in a Lovely Hamilton Park

takes too much plant food from the bulb. The leaves, also, are allowed to die down, thus sending the strength back into the bulbs. In this way good strong bulbs are formed.

"I always leave them in the ground over winter. A liberal coat of manure is put on after the ground freezes. If put on before the frost comes the ground heats and growth is stimulated. Late spring frosts sometimes damage them. When left in the ground all the year round hyacinths last about three and tulips about seven years.

"The ground might be utilized for something else if the bulbs were removed, but that means a lot of work. I prefer to leave them there and set a few plants among them to add beauty after the bulb bloom is gone."

CHRYSANTHEMUMS IN SEPTEMBER

GEO. HOLLIS, BRACONDALE, ONT.

CHRYSANTHEMUMS should now be making great headway. The early varieties will be swelling their buds and should receive careful attention. Side growths, as well as large growths from the base of the plant, must be removed regularly. The stems must be kept well tied up, because no matter how good the flower a bent stem spoils its value in the market.

Some bone flour spread on the bench and covered with about one inch of rotten manure, helps the plants wonderfully. Good cow manure is the best.

The later varieties require much the same treatment, but if they are making a soft rank growth no manure should be added until the flower buds begin to swell. In case the plants are so soft that the sun causes wilting, less water should be added at the root, but syringing must be continued just the same. Plenty of air,also, is needed.

A thorough syringing with tobacco water is required once or twice every week to have the plants perfectly clean when the flowers open. Fumigation is also good.

The warning of last month regarding the chrysanthemum fly on pot plants outside needs to be repeated now. In some of my seedlings this pest was busy taking the points out of the growths, and the result was the plants had to be removed. This fly is the main drawback in growing chrysanthemums outside.

The plants grown in pots need plenty of room. A supply of manure water twice a week helps them. Horticultural manure is first class for this purpose, as it is clean to handle. If the houses have been whitewashed or the plants shaded in any way the shade should be removed during September.

Walks should be artistically laid out on each school lawn and be edged with blooming border plants. These would always receive the tender care of the pupils and thus by association they would learn to respect the flowers and shrubs of some one who is "almost discouraged" because of the vandalism practised by the youths of today while on their way to and from school. —(P. G. Keyes, Ottawa, Ont.

If we who have plants find them a delight, let us not be stingy with them, but when we have one to spare give it to some one who has none. Give the children cuttings to grow for themselves and so teach them to love and care for flowers. The finest coleus plant I have, and the little geranium slip with the largest bunch of blossoms, were planted by my little girl.—(Mrs. W. J. McLenahan, Appleby.

PLANTING PERENNIALS IN AUTUMN

ALTHOUGH perennials are so easily grown they are comparatively scarce in Canadian gardens. There are sufficient hardy varieties adapted to northern sections to brighten up the gardens in the coldest districts. The trouble is the people do not know the plants. In some cases success has been achieved with some common plants, such as the Sweet William, but the grower became tired of such commonplace specimens and began experimenting with new ones which are not so easily grown nor yet so beautiful..

The object should be to get those which add the most beauty and can be grown most easily. Although experiments should be carried on with new introductions, this should not cause the old stand-bys to be discarded. If the new plant is a success, get more of it, but also keep some of the kind which seems more common. What flowers give better effect than a bed of perennial phlox or some Rudbeckia or even a row of holyhocks?

The border represented in the illustration is composed of coreopsis and perennial poppies, which gave good bloom during the early part of the season, and different species of Boltonia, perennnal phlox and pyrethrum for bloom later in the season. This border produced a very striking effect.

The different perennials capable of enduring the most severe winters of Ontario are too numerous to mention. The attention required by them does not vary much. The common method of propagation is by root division. In past years the usual practice has been to do the transplanting in the spring of the year. Recently, however, many growers have been adopting fall planting, and in most cases success has been the result.

"Such plants as phlox, peonies, golden glow, bleeding heart and the German iris," said Mr. Geo. Long, manager of Wm. Rennie's greenhouses, to The Horticulturist a few days ago, "do better when planted in the fall. All those plants which make an early start in the spring can be set out about the last of September or early in October. This usually results in earlier bloom and a larger truss of better flowers.

"There are, however, some perennials, such as the hollyhock, which are very unsatisfactory when fall planting is practiced. The frost kills a large percentage of them.

Beautiful Border of Hardy Perennials

Root action does not become established before frosts come and the result is rot sets in.

"Many think that because fall planting is best in Great Britain it should also be the best here, but it must be remembered that the winters are much more severe in Canada than they are across the water. ,

"With those plants which do become established in the fall it is not unusual to obtain good bloom two weeks or more earlier. Phlox set out in the fall makes an elegant show by the middle of August.

MULCHING IN THE FALL.

"It always pays to apply a mulch if there is only one small row of plants to be attended. Strawy manure or some such covering suits well. It is not the hard frosts which do the damage; it is the alternate freezing and thawing—a hot sun during day time, then a cold night, and then a warm sun.

"The mulch should be applied after the frost comes to stay. The time depends on the season. If put on too soon growth is encouraged and the danger of the plants being injured is increased instead of lessened. In the spring it should be removed little by little as the spring opens up, having them stripped when danger of frost is past. This time, again, depends on the nature of the soil, the site, and other conditions.

"With very little extra work and small expense many an ugly corner might be made a place of beauty or an unsightly fence might be hidden by some of the taller species planted in a nice border in front of it. The ground must be well prepared. A good coat of manure should be dug in so as to have a rich soil.

"The ordinary barnyard manure, if well rotted, is better than commercial fertilizers. You can be sure of not overdoing the matter. With commercial fertilizers it is very easy to add too much and do more harm than good."

Garden Work in September

BEFORE heavy frost sets in procure a few evergreen branches and lay them over your pansies, then shake a covering of dry leaves over them. If you have a sash, place it on also, or a few old boards will answer the same purpose. The object is not to have your plants thaw out before spring, which they would do, if left uncovered, should there come a mild spell during the winter.—(E. F. Collins, Toronto, Ont.

Although chrysanthemums are almost hardy, they must not be exposed to frost, or even to continued cold, wet weather if good flowering results are to be obtained. Sprinkling the foliage early in the day on hot days will be very beneficial to the plants. As soon as buds are formed on the plants, liquid manure should be given them about once a week, until flowers are fully developed.

By planting two or three Roman hyacinth bulbs in a four or five-inch pot early in September, and plunging the pot outside in ashes or sand for three or four weeks, when the bulbs will have made good root, flowers can be had before Christmas time. Plant the bulbs about half an inch under the soil, so their tops are well covered, water them well once, and if well rooted the blossoms will repay the little trouble experienced in securing them.—(Wm. Hunt Guelph, Ont.

Some leave their house plants out too late. It is better to bring them in when the temperature of the house is about the same as outside. If left out too late, when brought in many leaves fall or turn yellow. —(Mrs. W. J. McLenahan, Appleby, Ont.

HARVESTING AND STORING ONIONS

"I USUALLY pull onions in September," said Mr. J. W. Rush, of Humber Bay, recently to a representative of The Canadian Horticulturist. "They should be harvested as soon as the tops begin to fall. When sown thickly and not thinned they ripen themselves and no rolling is necessary to cause the top to fall over. When thinned they often develop thick-necks. A thick crop and rich ground gives better returns and the onions always ripen better. After they are pulled they should be left on the ground to dry thoroughly. Two or three good rains do not hurt them; in fact, it makes the tops come off easily.

"Onions should be stored in a cool, dry place, with plenty of ventilation. They will stand five degrees of frost in the field, but after they have been stored frost causes the outer layer to rise and peel off. A temperature just above freezing is best. When put on shelves they can be piled six or eight inches deep. The onion house should be by itself, as the dampness due to the evaporation of other vegetables causes the onions to sprout.

"I once knew a field of onions to be left out until near the last of October. They were then taken in and piled about seven feet deep in a cellar. It so happened that these kept well and not very many were lost because they were cool and dry when put in. I would not, however, advise this method.

SMALLER ACREAGE.

"Several growers in this section," remarked Mr. W. C. McCalla, of St. Catharines, to a Horticulturist representative, "have an acre or two of onions. Others planted some, but the rapid growth of weeds during the wet weather of early summer forced them to plow their patch up. The weeds were not fought in time, and as a consequence the young onions were smothered out.

"A few good crops remain, but in the main they are below the average in size and quality. As soon as they are ripe they should be harvested. The time of year that the tops go down and shrivel depends on the weather. If they are sown early and the summer months are hot and dry they may be harvested in August.

"There are two ways in which onions may be stored. Some put them in a mow, and when they are frozen solid cover them with straw or hay and leave them thus frozen throughout the winter. This one freezing does not do any damage. It is alternate freezing and thawing which destroys them. The chief objection to this method is that they cannot be got at readily when wanted and they cannot be handled when frozen without damage.

THE BEST METHOD.

"The other and the most approved method is to pull and leave them in the field until thoroughly dry. Then, store them in a cool dry place. A cellar that will keep potatoes might not do for onions. The best plan is to put them on slatted shelves in thin layers about eight or 10 inches deep. Some growers have obtained satisfactory results by storing their onions in slatted tomato crates. The main thing is to have plenty of ventilation and no moisture or frost."

"Up to the last two seasons," said Mr. Geo. Benner, of Burlington, "I have been able to pull my onion crop in August, but last year and the year before it was September before they were ripe.

"When they have thoroughly dried I take them into the storehouse. They must be stored where it is dry and free from frost. A temperature just above freezing suits them best. Warmth and dampness causes them to sprout. I place them about a foot deep on a network of fine mesh chicken wire on frames. They also keep well in slatted bushel boxes, but if in bulk they draw moisture and sprout."

CELERY GROWING

THE fleshy leaf stock of the celery plant is much prized as a table delicacy. It is not before this edible part of the plant has been thoroughly bleached, however, that it is in fit condition for the table. Owing to its increasing popularity it is gradually becoming more widely cultivated, but even yet there are countless gardens where a supply of this crop is unknown.

Although a lover of soil rich in nitrogenous matter, it can be grown with fair success on most soils if sufficient manure is added and frequent watering given during the summer. A retentive well-drained rich black loam seems to suit it best. Too much moisture is just as harmful as too little.

By starting the seed in the house or in hot beds and growing both early and late varieties, this wholesome vegetable may be kept on hand from July until well on into the winter months. Large growers with special storage cellars always have a good supply in late winter.

"The best varieties," said Mr. J. E. Terrill, of Picton, to The Horticulturist recently, "are Paris Golden for early and Evans' Triumph for late crop. I am growing those varieties exclusively this season. A low black well watered soil suits the celery crop best. I set the plants out in trenches. A plow is used to make a trench five or six inches deep. In this a few inches of well-rotted manure is put and dirt is put on top. The whole is well tramped and the plants set in this.

"I always bleach the early varieties with boards about 10 inches wide. With the Evans' Triumph some dirt is piled along to give the head shape, but as a rule bleaching early varieties by banking with earth results in rust, and that spoils the sale.

"Late celery is planted in trenches four feet apart. As the plants grow the banking up is done by a celery-hiller, and I find it does the work well. A man goes along to pack the dirt tightly against the plants. This makes just as good a job as by using the hoe, and twice as much can be done in the same time. The Evans' Triumph is a good keeper and will bleach in the cellar by about February 1.

"The crop is put into a large frost-proof storehouse 100 x 30 feet. For winter use it is well to leave the crop in the field as late as possible until the temperature of the cellar is lowered. The best temperature is about three or four degrees above freezing. There is a driveway up the middle and the plants are set in sand. They are packed closely, only the roots being covered. No water is added, and we never lose any because of wilting."

ANOTHER GROWER'S METHODS.

"For summer celery," said Mr. Wm. Waller, of Bartonville, "I grow the Paris Golden because there is a better demand for it on the local market. It is tender and easily bleached. I grow between 30,000 and 40,000 per season. Planting is done in trenches three feet apart, and the plants are put six inches apart in the row. Too much time and labor are required to dig manure into the trenches. As fine a crop can be secured by adding plenty of manure and plowing it in well in the spring shortly before planting. This supplies sufficient nourishment.

"Bleaching is best done by means of boards. They should be used when the plants are about one foot high.

"For winter use the plants are stored in a cellar with a sand floor. If they are to be kept for a long time it is best not to pack too closely, and they should be repacked once every three or four weeks and all leaves which show signs of rot or rust removed. Water should not be added. Plenty of ventilation is desirable, but frost should be prevented. Celery will stand slight frost when growing in the field, but not when in the cellar."

THREE VARIETIES.

"There are three varieties of celery," said Mr. W. A. Best, of Picton, "which I know to be all right: the Dwarf Silver for summer, the Golden Self-bleacher for fall, and the Golden Heart for winter. White plume is pretty but tasteless, and of very poor quality.

"Some growers recommend growing celery in beds, but I do not favor that method. More plants can be grown on the same ground space, but it requires more labor and more watering. Besides, the soil must be very rich and the plants are liable to rust.

"I do not, however, favor planting in trenches. I make a small furrow with a Planet Jr. wheel hoe and put commercial fertilizer in the bottom of this and mix it up well. No work should be done among celery plants while they are wet after they are six inches high, as it is liable to cause rust or rot.

"Best results are obtained by bleaching with boards. Very frequently hilling up the summer varieties with earth causes rot. Late celery may be banked up in September so as to have it partly bleached when it goes into the storehouse in October. The plants should be perfectly dry when stored."

MUSHROOM CULTURE

TO be a successful grower of mushrooms the work should not be restricted by any set of rules, as there are few people who uniformly succeed. The work must be regulated by conditions and the location of the beds. The same rules would not apply to all conditions. By practice and experimenting a method may be developed which, with a little persistence on the part of the grower, may result in success with mushrooms.

The method which has proved successful with one of the largest growers in Toronto is here described. This grower believes that in mushroom growing there are three prime requisites: decaying vegetable matter, a uniform and rather low temperature, and a steady supply of moisture. The decaying matter is supplied by horse manure, which should be obtained as fresh as possible. It is necessary to produce the required heat. This applies more especially to the fall of the year, as in the summer there is too much heat, which has to be reduced by mixing soil with the manure. The manure should be piled in some sheltered place and there allowed to ferment and heat. The pile should be turned at least once a day, perhaps more frequently, depending on how high a temperature is attained. The heating itself is, perhaps, of no advantage except for the fact that it contributes to the decay of the material.

Manure should stand about three weeks, and when it ceases to supply an increasing amount of heat it should be put in the beds. The temperature at this time should not go beyond 120 degrees. The beds may be on raised benches or on the ground, but they should have a dry and warm bottom. Raised benches have proved to be the best, as there is less draft and the temperature can be kept more even. They should be at least 10 inches deep when raised from the ground, or if ground beds are used it is well to have them 12 to 15 inches deep.

The manure should be packed close and in a uniform manner, but not too hard. The bed should feel somewhat springy. Leave the bed until it is found how high the temperature goes. After a temperature of 90 degrees has been obtained the mushroom spawn should be planted.

Great care should be taken in selecting only the best spawn. One of the methods of telling good spawn is by its appearance.

It should be of a bluish white color, and not inclined to yellowing, which invariably indicates that it is exhausted. The greater the number of white threads the more certain it is that the spawn has run too far. Fresh spawn should be obtained each year, and in planting it should be broken into pieces about the size of a walnut and put about eight or 10 inches apart each way. The depth of planting is regulated by the moisture of the bed. The greater the moisture the shallower the planting, but in any case do not cover them more than one and a half inches.

AFTER GROWTH BEGINS.

After the spawn has been left about 10 days it should show signs of running, and if it does it should be covered with one and a half inches of clay loam. After spreading the soil over the bed evenly it should be packed firmly with a mallet or brick, and then given a slight watering.

Should the temperature of the bed go below 60 degrees a covering of straw about six inches deep should be added. Care should be taken when this is done to avoid overheating. If signs of overheating appear remove the straw at once; if not, leave the straw on until mushrooms appear. This may be in four weeks or not until four months.

The temperature of the beds should never go below 60 or above 70 degrees after the spawn is in place. If the bed becomes dry it should have a slight sprinkling of water about the same temperature as the bed. As the crop increases more water is required.

The New President of the C. H. A.

Mr. Wm. Fendley, of Brampton, who was elected president of the Canadian Horticultural Association at its annual convention held in Montreal early in August, was initiated into the cut flower business, in the employ of the late H. Dale, of Brampton, 21 years ago. A few years later he began business for himself in a small greenhouse, 10 x 12 feet. He gradually increased his glass space, making a specialty of carnations and violets. At present he has 19 houses, averaging 180 feet in length, and is known far and wide as a successful violet and carnation grower. Mr. Fendley has been faithful in his attendance at the annual conventions of the association and, being well informed in regard to its work, should make a most efficient president.

In gathering the mushrooms they should be drawn out, not cut off, and the hole filled with soil. The best months for starting beds are September and October. About four months is the usual time a bed continues to yield a crop, and they should produce about one-half pound to the foot.

The changing weather conditions of the last few seasons have been rather discouraging to truck gardeners.—(J. W. Hyatt, West Lake, Ont.

The land must be in good shape and the work done scientifically to get returns from truck gardening.—(Earl Spencer, Picton, Ont.

In growing onions one of the main things is to have the crop ripe and cured before rainy weather comes in the fall.—(George Benner, Burlington, Ont.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE HAMILTON SHOW.

In the fruit and flower show which will be held in Hamilton September 12, 13 and 14, the fruit growers of the Niagara district and the residents of Hamilton have a splendid opportunity of which they should take every advantage. Owing to the fact that the provincial horticultural exhibition, which is held in Toronto in November, is too late for many of the early fruits, it was decided this year to hold an earlier show in Hamilton. The show this month is intended to mainly benefit the fruit growers of the Niagara district and also many amateur flower growers. Whether or not it shall be made a permanent affair largely depends on the interest manifested in it by the growers and by the citizens of Hamilton.

The prize list is sufficiently liberal to offer strong inducement for the fruit growers of the Niagara district to show what their far famed section is capable of in the way of fruit production. With proper management and the requisite amount of enthusiasm this show can be made a splendid annual advertisement for the district it is principally designed to benefit. As much will depend on the success of this first venture every person in any way interested should do his best to make it a success. In a matter of this kind a little work on the part of many will accomplish more than hard work on the part of a few.

A SPLENDID OPPORTUNITY.

Vegetable growers have long complained of the existing tariff arrangements which while shutting them out of the United States markets leaves them open to severe competition from the southern States. Carloads of vegetables are shipped from the south to Canadian cities, where they are often disposed of at prices below the cost of production in the centres where they are sold.

The fact that the tariff commission is to sit in leading centres, such as Toronto and Montreal, should be taken advantage of by the vegetable growers. While anything which will be likely to advance the price of vegetables will be certain to meet with strong opposition the vegetable growers have claims which deserve to be heard. By appointing a strong committee to prepare their case and, if necessary, by engaging a lawyer to present it, they should be able to impress both the commission and the public with the necessity for at least some change in existing conditions.

Every fruit grower in eastern Canada who can possibly do so should endeavor to attend some of the demonstrations in fruit packing that will be given during the next few weeks at different centres by the expert who is being brought from British Columbia. The great name California fruit has made for itself has been earned largely by the manner in which it has been packed. In this work, it has long been admitted, California has been able to give Canadian growers many pointers. If our growers lose this opportunity to gain suggestions for the improvement of their methods they are not the wide-awake men they are generally held to be.

The illustration in this issue showing the excellent work that has been accomplished this year by the Guelph Horticultural Society in improving the appearance of the hitherto almost ugly town hall draws attention to a line of work more horticultural societies could follow with advantage to themselves and the public. The improvement of neglected public places in this way will do much more for the cause of horticulture than a rather too free use, for instance, of society funds for the purchase of seeds and bulbs.

As soon as the Toronto exhibition is over the fruit, flower and vegetable growers of the province should set to work in earnest to get ready for the Ontario Horticultural Exhibition, which will be held in Toronto in November. The fact that the exhibition will this year be held in

Massey Hall will add greatly to its success. In Massey Hall it will be possible to show the flowers and fruit to every advantage, which, together with the central location, will result in a greatly increased attendance. The several conventions which will be held at the same time will be one of the best features of the exhibition.

That was a splendid idea, the holding of a joint picnic last month by the vegetable growers of the Toronto, Hamilton and Niagara districts. The more growers in any line can meet and fraternize the better for all concerned. The success of this first venture suggests that it may be possible to make a joint picnic of this kind an annual affair.

New Advertisers

Gould Cold Storage Co., Montreal.
W. Gammage, London.
J. A. Simmers, Toronto.
Renfrew Nurseries, Renfrew.
Perkins & Paine, Port Dover.
Eben James, Toronto.

Best Spraying Mixtures

J. FRED. SMITH, SCALE INSPECTOR, GLANFORD, ONT.

During August I made an examination of the trees sprayed for San Jose scale in a part of the Niagara peninsula. Where the lime and sulphur had been prepared by the action of the lime alone the result is anything but satisfactory, but where the wash had been boiled by steam in the old way the results were the best that I have ever seen.

What the result may be in other localities I can not say, as I have not made any examination, but if they are anything like those I refer to the advice which the fruit growers received at a large number of meetings from a gentleman from the United States might better never have been given. If the lime and sulphur wash is properly prepared by boiling, and also properly applied, the scale cannot make headway.

A striking illustration of the value to Canadian shippers of the Fruit Marks Act is shown by the following incident, reported to the Extension of Markets Division, Department of Agriculture, Ottawa, respecting a shipment of apples by steamer Fremona, from Portland, Me.: "Besides the Canadian apples there were shipped by this steamer 992 barrels of United States apples, by different shippers, which on being landed over 50 were found to be without marks of any description. As a consequence the consignees wanted to pick and choose, thereby causing trouble and delay, during which the apples from the Canadian shippers had been placed on the market."

I am much pleased with The Horticulturist.—(Rev. J. Gandier, Newburgh, Ont.

WE WANT 8,000 SUBSCRIBERS

By January First Next

——AND——

We Need Your Help

United States fruit and floral publications are pushing their papers into Canada and are constantly asking their readers to help them get new subscribers.

Will not our readers help us in the same way?

Without saying anything about our United States competitors (they are hard ones to fight) we will state that **THE CANADIAN HORTICULTURIST** is the only paper published, which will keep you fully posted in regard to what Canadian Fruit, Flower and Vegetable Growers are doing. Our aim is to give our readers in each issue the information they are looking for, and therefore our articles are timely. Tell these facts to your friends.

Our Subscription Offers

If you will induce one friend to take The Horticulturist for one year, and send us a dollar for his subscription, we will extend your subscription for six months.

If you send us two new subscriptions, we will extend your subscription for one year.

Trial subscriptions, from October until the first of next year, will be accepted for 10 cents. For every three trial subscriptions you send us, we will extend your subscription for one month.

New subscriptions, from October until January, 1907, or a year and a quarter, will be accepted for $1.

Those of our readers who are taking The Horticulturist through horticultural societies or fruit growers' associations will be allowed to retain a a liberal commission on all new subscriptions or we will arrange with the secretary of their society to extend their next year's membership.

Free sample papers will be sent to any one who applies for them.

WONT YOU HELP US TO REACH THE 8,000 MARK?

The Canadian Horticulturist

TORONTO, ONT.

OUR SPECIAL FRUIT CROP REPORTS

Correspondents from the peach, pear, plum and grape districts give rather glowing reports of these fruit crops. The pear crop is light, but all three others are much ahead of the crop harvested in 1904. So far there are but slight signs of rot in the grapes, although it has started in a few sections, while very few plums have been affected. The peach crop is above the average. The total number of bearing trees is below what it was in former years, which will affect the total yield and tend to prevent any heavy surplus.

IN THE DIFFERENT SECTIONS.

In the Lake Erie district the peach crop is about equal to that of last year, although one or two growers state that it is better. In the Niagara peninsula the correspondents, with one exception, report a full crop and good quality, while reports from Burlington say that it is 50 per cent ahead of 1904.

PEARS A POOR CROP.

Reports regarding the pear crop show no change from those received last month. Along Lake Erie it is placed at a light to medium crop, scarcely half as large as last year's. Correspondents from the Niagara section report a light crop, while Burlington growers have only about one-quarter as many as in 1904. In some sections Keiffer pears are reported as a heavy crop. Several reports from Simcoe county state that there is a better crop than was looked for early in the season, and that the harvest will be ahead of last year's. Ontario county growers are bothered with the pear scab.

THE PLUM CROP.

Early in the season reports from all sides placed the plum crop as extra large. The wet weather caused many to drop, however, and reports up to August 25th promise an ordinary yield. Some varieties have stood the unfavorable conditions better than others. Lake Erie growers state that last year they had none, or in some cases a few, whereas this year they have a full crop. Correspondents from St. Catharines give Japanese varieties full crop and American medium to light. The plum crop throughout central Ontario is medium to full except in Brant county, where several reports state that it is very light. In York and Ontario counties several districts are losing the crop owing to rot.

LITTLE ROT IN THE GRAPES.

Vineyards along Lake Erie promise about the same crop as last year. One grower in Essex says the crop is a failure. No mention is made of rot except in Welland county. In the Niagara district reports are all favorable and promise excellent quality of clean fruit or very little rot. As a rule the crop is more abundant than that of 1904. In the Burlington section the yield will be fully 50 per cent. above last year's.

THE APPLE SITUATION

High prices should rule this fall for apples. Reports received by The Canadian Horticulturist from all parts of Ontario show that the crop is not likely to total more than one-third to one-half as much as last year's, while the quality is little if any better. Should high winds prevail this month the total yield may fall short of even this estimate. This fact, taken in conjunction with the very small crop in Great Britain, and a considerable falling off in the yield in the leading producing sections of the United States and the Maritime provinces, indicates that there will be a marked scarcity of apples and that growers should realize high prices.

In Ontario, although buyers have been scouring the country, growers have been holding their crops. As a result not many sales have been reported to date, making it difficult to estimate what the final ruling price will likely be. In the St. Catharines district the crop is reported very light, with a heavy demand, and some sales being made at $1 to $1.25 per barrel on the tree. In the Grimsby district one-quarter to one-third of an average crop is expected. Prices have been ruling high, growers asking $2 to $2.50 per barrel, packed.

Between Hamilton and Toronto a half crop of good quality is looked for; fall and winter apples selling for $1.25 to $1.50 per bbl. Along the north shore of Lake Ontario and in the Georgian Bay district not many sales are reported, although a few orchards have been bought. The crop is estimated at one-third to one-half last year's, and the prices being offered and paid range from $1 to $1.30 per bbl.

The following reports among many received by The Horticulturist will give a good idea of the situation :

THE ST. CATHARINES DISTRICT.

The apple crop is very light in this district, there not being one barrel where we had 10 last year. A few orchards are well loaded with clean, well grown fruit, while in other orchards the apples are crooked, uneven and wormy. In the majority of orchards there is little or no fruit. Buyers are offering one dollar per barrel on the trees for No. 1—2. In two instances, for good orchards, $1.25 has been paid on the tree, the farmer to board the hands and draw the fruit to cars. Some growers are holding out for higher prices, but these are men who have small lots.—(Robt. Thompson, St. Catharines, Ont.

NEAR GRIMSBY.

The apple crop in the Niagara district is an unusual failure. Not one tree in 10 has a full crop, and there is not one-quarter of an average crop. The Spy is the best; the fruit is clean, and about one-half the trees have an average crop. The fruit is going to be clean and well colored. Baldwins come next, with about half an average crop. Greenings are a failure, Kings and Russets light. Early apples are going at 20 cents a basket cash at point of ship-

ment, which means about $2 a barrel. One orchard of winter stock near Grimsby has been bought for $700, in which there will be about 350 barrels, so I expect we should have $2 to $2.50 per barrel packed. The quality is much better than last year.—(L. Woolverton.

AROUND WINONA.

The apple crop in this section will run one-fourth to one-third that of last year. The quality is fair, not much fungus, but codling moth is much worse than the two past seasons. Very few sales have been made. One orchard has been sold for $1,000 and another for $700. The man who packed the $700 orchard last year says there is not over 350 barrels in it. In both cases the purchaser is to stand all expense picking, packing, etc. About $1.50 per barrel for the fruit picked is looked for here.—(M. Pettit.

THE BURLINGTON DISTRICT.

The apple crop in the Burlington district is not more than one-half of last year's; quality probably 50 per cent. better. Some sales, I am told, have been made at 80 cents per barrel for fall apples, to $1.25 and $1.50 per barrel for No. 1's and 2's, fall and winter, the grower to pick the apples and deliver same when packed to wharf or railway station. Probably 50 per cent. of apples in this district are in buyers' hands. —(A. W. Peart.

ONTARIO COUNTY.

Our crop of apples is about one-third of the 1903 crop. There will be a lot of wormy apples, but practically no scab. Fruit large and fine. Trees are not heavily loaded, and a heavy wind during September will play havoc with the crop. Almost all orchards are sold, sales having been made in every way. A good part are sold lump, and in many cases the full price has been paid in cash. One dollar per barrel for fall and $1.25 for winter apples seem to be regular prices. I think $1.50 has been paid for one or two extra good orchards. No sales have been made by the barrel as far as I know.—(Elmer Lick.

PRINCE EDWARD COUNTY.

The apple crop is 50 per cent. short. Farmers are holding until market develops. Apple buyers are in evidence up and down the country side taking in the situation. The fruit is of fairly good quality. No sales have been reported.—(John W. Hyatt.

EASTERN ONTARIO.

In the counties of Leeds and Grenville apples are a fair medium crop, about double the crop of last year. Snows, or Fameuse, are the leading variety, not many winters being grown, Russets and Canada Red being the chief varieties. Fruit and trees have been particularly free of insect and fungi attacks, but indications point to serious trouble with "spot" on Fameuse before picking, for the disease is spreading rapidly over the whole surface of the fruit on trees that have not been sprayed. I am spraying with Burgundy mixture to check the spread of the disease, which has started again where spraying was done earlier in the season with Bordeaux. Most of the orchards here have been sold at about $1 per barrel on the tree for 1st and 2nd quality. There will be very few apples held for late markets, as the tendency is to sell early.—(Harold Jones.

THE GEORGIAN BAY DISTRICT.

In most of the best districts the apple crop will not be more than 20 per cent. of an average. As regards size, apples will average larger than last year, and quality on the whole will be better. There have been no sales made in our immediate vicinity, that is Thornbury, Clarksburg, and 15 to 20 miles around about. There have been a few sales about Creemore, Cookstown, Stayner and Duntroon. One buyer told me he thought he would have about 4,000 barrels, and the highest price paid was $1.15. If this is so it will be about all the apples there are there. There will not be many sold here on contract. The growers are building one of the best fruit storage plants in Canada, which will be ready for the winter apples. The plum crop is also poor, except Lombards, which are very good.—(J. G. Mitchell, Clarksburg.

THE ESSEX DISTRICT.

The crop of apples is not as large as last year, either in size or quantity. The codling moth has got in its work more than usual. Not much spot or scab. I have not heard of any buyers looking after the crop. No price has been fixed.—(W. W. Hilborn, Leamington, Ont.

IN LAMBTON COUNTY.

The apple crop is not equal to last year's. In this district a good many growers have taken a great interest this year in spraying, consequently, although the apples are not thick, there is a fair quantity and unsurpassed quality. Other orchards that have not received proper attention produce only a light crop of poor fruit. The growers are holding on to their crops. I know of none having sold, and am not in a position to state what price they expect.—(Colin Johnson.

PROSPECTS IN THE MARITIME PROVINCES.

The apple crop in the Maritime provinces does not promise any better than in Ontario. Reporting from Kentville, N. S., Mr. Ralph S. Eaton, president of the Nova Scotia Fruit Growers Association, states that the general feeling throughout the Annapolis Valley is that the crop will be a very light one. The principal varieties, Gravenstein and Baldwins, with few exceptions, are not bearing this year. Reports from growers in other parts of Nova Scotia, New Brunswick and Prince Edward Island are to the same effect. Rev. Father A. E. Burke, president of the Prince Edward Island Fruit Growers' Association, states that fall and winter apples will be a light crop, not half of last year's.

IN THE UNITED STATES.

American Agriculturist, a United States publication, which makes a specialty of crop reports, announces that in many heavy apple producing sections of the United States there are slender prospects this year and that prices have opened on a high plane. In the Hudson River,

New York, section buyers are giving $1.75 to $2 per barrel for fruit on the trees. In Michigan fine Duchess have sold for around $2 per barrel. It states that it is apparent apples will be contracted in the United States this year for more money than last year.

THE BRITISH APPLE CROP.

A report from Woodall & Co., Liverpool, England, says that the apple crop in the United Kingdom promises to be one of the poorest in many years. Out of 270 reports from the most important districts only three place the crop above the average, 44 placing it as average, and 223 under average. In many cases it is given as a total failure. Reports from Holland, Belgium and Germany also indicate small crops.

TOMATO SITUATION ENCOURAGING

The tomato situation, as far as the growers are concerned is, on the whole, encouraging. In the St. Catharines and Prince Edward county sections, two of the largest producing districts, while the crop of early tomatoes was somewhat larger than usual, there will be a marked shortage of the later varieties. In the Hamilton district, while there are possibilities that the crop of late varieties will be large, it is reported by leading growers that the canners will not be able to secure nearly as many tomatoes as they require. For this reason it is believed prices will be well maintained.

The following reports received by The Horticulturist, as late as August 25, from the leading growers in the main producing districts give a good idea of the situation:

PRINCE EDWARD COUNTY.

The crop of early tomatoes is somewhat larger than last year, and will be an average one, but the early varieties represent a small per cent. of the crop. The late varieties are still the leading crop for canning, and they are very poorly covered with fruit. I have not met a farmer who reports a full crop of the late varieties. If frost comes as early as last year the late varieties will be an entire failure, as we are later in ripening this year than last. Prices are 25 cents per bushel. The syndicate and independent factories appear to be willing to leave the situation alone. The crop here will be much less than an average one, both in acreage and yield.—(J. W. Hyatt, West Lake.

IN THE NIAGARA DISTRICT.

In this section the acreage planted to early tomatoes is at least double that of last year, and in general the crop has been good. The hot dry weather ripened them rapidly, and the price dropped sooner and lower than usual, so that the returns have not, on the whole, been satisfactory. Owing to the failure last spring of the Canadian canners and the growers here to come to an agreement as to contract price for late tomatoes the members of our association have greatly reduced their usual plantings. What are being grown are mostly for a new independent company, which, in May last, made contracts at 30 cents per bushel, and have now a new factory in operation. This, together with a probable shortage in the crop of late tomatoes, has stiffened the price, so that any one who has tomatoes not contracted for can readily obtain 30 cents per bushel—even for early ones. Outside of our association a number of new men were induced to contract for 25 cents. Many of these started late, and plants were often put on unsuitable ground and will not yield much of a crop. However, good plants set on suitable ground and well cared for promise a fair crop, provided the weather is favorable for the next few weeks.—(W. C. McCalla.

SITUATION AROUND HAMILTON.

The following statement as to the situation around Hamilton has been made to The Horticulturist by Mr. E. J. Mahony, president of the Hamilton Tomato Growers' Association:

Last January a well known Hamilton capitalist decided to establish a canning factory and contracted for about 40,000 bushels of tomatoes at 30 cents per bushel. Shortly after making these contracts the gentleman was induced to transfer them to the companies already doing business in the city, and it is generally believed that he received a very liberal remuneration for making the transfer. In addition to these 40,000 bushels the canners induced a number of inexperienced growers and also a few members of our association to sign contracts at 25 cents and the "rise." Now, the whole situation here may be found in the answer to two questions—first, will the canners receive a sufficient amount of tomatoes to fill their orders on these contracts? and second, what is the position of those growers who have made no contracts and are still holding out for 30 cent contracts? The factories in this immediate vicinity require annually at least 200,000 bushels of tomatoes. Of this amount less than 60 per cent. are contracted for. Even in the most favorable years less than 70 per cent. of the amount contracted for are delivered. On this basis of calculation the factories here are face to face with a very substantial shortage. It should also be noted that a majority of those who made contracts this year know very little of tomato cultivation, and in many cases less than 25 per cent. of the amount contracted will be delivered. To make matters still worse for the canners there is every indication that the late tomatoes will be a light crop.

Those growers who have refused to make contracts at 25 cents have no cause for regret. They have the satisfaction of knowing that they played the part of men, and have proven their loyalty to the growers' association and to the principle maintained by the association that the producer, as well as the purchaser, should have a part in fixing the price of his produce. They have, also, the additional satisfaction of being able to dispose of their tomatoes at a price equal to and even considerably in excess of 30 cents per bushel.

Those growers who have shown their weakness by making contracts at the prices dictated by the canners are in a much less enviable position. They are forced to endure the humiliation of being looked on as deserters by their brother growers, and, moreover, they are up against a financial loss of 5 to 10 cents on every bushel of tomatoes they deliver to the factories on their "25c.-and-the-rise" contracts.

HOPES FOR FUTURE.

We feel that our Hamilton Association, which have conducted the fight in this district, has reason to feel satisfied with the results. At the beginning of the year we entered the fight single handed without any provincial organization to support us, without any organ through which to explain our position, and with only a very limited knowledge of the situation in other parts of the province. To-day we possess all those advantages, and in addition to this our financial position is stronger than at any time since our organization three years ago. If, therefore, we find it necessary, we are in first-class shape to continue the fight for higher prices, not only for tomatoes, but also for other lines of produce as well.

THE HAMILTON FRUIT, FLOWER AND VEGETABLE SHOW

Great preparations have been made for the combined show of fruit, flowers and vegetalbe which will be held in Hamilton September 12-14. As the object of the show is to benefit the horticultural interests of the Niagara district, all the principal organizations in the district have been given representation on the board of management. The fruit prize list is worth about $500, the flower prize list $350, and vegetable $70.

His Honor Lieut.-Gov. Mortimer Clarke has been invited to open the exhibition the afternoon of the first day. Demonstrations in the cooking and preserving of fruit will be given every afternoon and evening by members of the Ontario Women's Institutes. Demonstrations in the packing of all kinds of fruit will be given the afternoon and evening of the first day by an expert from British Columbia, and at the three sessions the second day. Samples of fruit will be given free to all who attend the second day, and of flowers the last day.

Among the special exhibits will be one by the Ontario Agricultural College and one by the three fruit experiment stations in the Niagara district, under the direction of the superintendent, Mr. Linus Woolverton, of Grimsby. In addition to this a large part of the fruit exhibit at the Toronto Industrial Exhibition will be shown at Hamilton. There will also be exhibits by the canning factories and of spraying machinery, fruit boxes, best decorated dining room, etc.

Those on the committee of management include the officers of the Hamilton Horticultural Society and Messrs. W. A. Emory, of Aldershot, president of the Ontario Vegetable Growers' Association; M. Pettit, of Winona, representing the Ontario Fruit Growers' Association; A. H. Pettit, of Winona, representing the Niagara District United Fruit Growers' Association; E. J. Mahony, of Hamilton, president of the Hamilton District Vegetable and Fruit Growers' Association; F. Foster and W. E. H. Peer, of the Burlington Fruit Growers' Association, and P. W. Hodgetts and H. B. Cowan, of the Ontario Department of Agriculture. Arrangements are being made for reduced rates over the radial lines, and if possible, for excursions over the railways. It is expected there will be a large attendance of the fruit and vegetable growers of the Niagara district. Mr. J. M. Dickson, of Hamilton, is the secretary.

Experimental Canning Station.—If the Ontario government establishes an experimental fruit farm in the Niagara district would it not be a good thing to establish an experimental canning station in conjunction with it to test the best way of putting up fruits and vegetables, also approximating the cost of building and running? This would encourage co-operative canning among the growers.—(Thos. R. Stokes, Niagara Falls South, Ont.

BULBS FOR FALL PLANTING

Our catalogue of Bulbs, House Plants, Shrubs, etc., is now in the hands of our printers. . . .

DROP A CARD FOR A COPY.

THE WEBSTER FLORAL COMPANY, LIMITED

FLORISTS, NURSERYMEN AND SEEDMEN — **HAMILTON, ONTARIO**

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

The Apple Box

LINUS WOOLVERTON, GRIMSBY, ONT.

I was among the first apple growers in Canada to use the box instead of the barrel, having begun to use them for fancy graded apples wrapped in paper, 12 or 15 years ago. Every year I have been using them more and more freely, some seasons exporting from my own orchard several thousand boxes. At first I used a box measuring outside 12 x 12 x 24, sending it not only to the British market but also to Australia. Mr. J. S. Larke, Canadian commercial agent, took much interest in the experimental shipment, which went by way of Vancouver, at a through rate of $1 per box. These apples suffered from the heat of the tropics en route, but those arriving in prime condition sold for $3.75 a box. They were shipped early in November, and arrived at Sydney before the earliest Tasmania apples were ripe. Finding this size to be larger than most boxes used in the British markets, I adopted the smaller box, measuring inside 9 x 12 x 18, a fine little box for packing and for display, but this proved too small, taking four to the barrel.

I was a member of the committee of the Ontario Fruit Growers' Association, appointed at Walkerton to consider the best sized box to be used throughout the Dominion. We concluded first that a capacity of about one bushel was most desirable, being a measure universally adopted already, and considering the average size of the apples to be packed as No. 1 grade, we concluded that an inside measurement of 10 x 11 x 20 inches would be the most convenient.

Last year I used several thousand boxes of this size for export to Glasgow market. I found that the apples packed well in it, each layer taking about four apples wide and seven apples long, and four deep, or about 112 apples in all. If the apples were larger, as the Kings for example, the box would only take three layers deep.

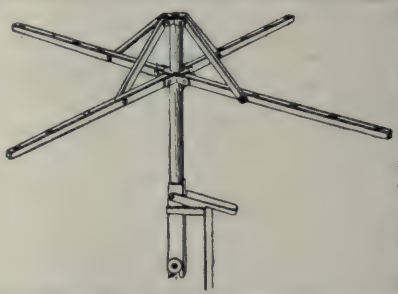
It is of the utmost importance that we should reach uniformity in the use of boxes, for so long

GEO. VIPOND & CO.

Fruit Commission Merchants

MONTREAL

Reliable——————Prompt——————Safe



The Davis Clothes Line Reel

16 ft. diameter

130 ft. of line

Write for our free illustrated circular.

The Waggoner Ladder Co. Limited

London, Ont.

MOORE'S EARLY

GRAPES

are not yet ripe, but the time for placing an order for nursery stock should always be RIPE.. We grow the

Best Trees, Shrubs and Vines

Excellent specimens of **Maples, Elms, Lindens** and **Catalpas** for street planting always in stock.

The Helderleigh Nurseries

E. D. SMITH, Winona, Ont.

Salesmen Wanted.

Write for Catalogue.

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

as a miscellaneous lot of sizes and shapes are used, growers can never expect to make sales f. o. b. by the box. This is the hope of our business, for with well defined grades, so that a distant buyer can know just what quality he is buying, and a uniform box and uniformity in style of packing, there is no reason why such sales should not be made, instead of the present ruinous method of consignment, leaving the distant buyer to put his own price on the fruit when it has, perhaps, crossed the sea.

A year ago I sold to a first-class house in Paris, France, a lot of my XXX boxed apples, Baldwins and Spys, at $1.72 delivered in Montreal. I had an enquiry again last year from the same house, but the excessive foreign crop prevented the deal. However, this points out the proper method of sale, and every means to that end should be encouraged.

I am inclined to think the penalty, 25 cents a box, too high, for the box itself only costs about 10 or 12 cents, and the size is only one bushel, which often sells in our own markets for about 25 cents. According to this section, if a man were by mistake to use a box varying ever so slightly from the measurements, and were shipping in thousand lots, his fine would amount to hundreds of dollars.

Dishonest Packing

The practice of topping or over-facing and dishonest packing of fruit generally is thus referred to in the Market Growers' Gazette, London, England

"Honest packing is undoubtedly the keynote of the success obtained by the Canadian, Nova Scotian and French products. Salesmen have many classes of buyers to deal with, and if growers wish to reach the best buyers they must pack the best quality, for no buyers of first-class fruit will be deluded, at any rate twice, into buying a top layer of the finest fruit with nothing but inferior stuff below.

"If this secondary fruit had been carefully and fairly packed and sent separately, another class of buyer, the largest one, would have purchased it. This would mean much quicker sales, and for the whole consignment a better price. It does not follow that because a buyer should pack as though he had a conscience he should pack without using his intelligence.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY
Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.

Windsor SALT

is all salt. Every grain is a pure, dry, clean crystal. That is why it never cakes—dissolves instantly—and goes farther than any other.

Insist on having —WINDSOR SALT.

GET OUR CATALOGUE OF
RUBBER STAMPS
AND STENCILS
THE SUPERIOR MFG. CO.
58 ADELAIDE ST. W. TORONTO.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

FOR SALE CHEAP—ONE OF THE CLEANEST and best equipped greenhouses in Toronto. Everything in splendid condition, carnations planted, excellent stock of ferns and general stock of plants, 10,000 feet of glass. Apply at once to F. C., care of The Canadian Horticulturist.

FOR SALE—FLORIST BUSINESS, WELL established in good residential part of Toronto; new brick store and dwelling; also greenhouses. These may be purchased separately or combined; owner has excellent reasons for retiring. A bargain if sold immediately. Apply to M. L., care of The Canadian Horticulturist, Toronto.

APPLE GRADER. A FIRST-CLASS PETTIT Fruit Grader, in perfect working order, for sale at a bargain. Address L. Woolverton, Grimsby, Ont.

"Bulb Culture for the Amateur"

10c

Address Secretary Horticultural Society,
195 Pretoria Ave., Ottawa, Ont.

Items of Interest

Practical lectures are to be delivered in the Dairy Building at the Canada National Exhibition, Toronto, at 2.30 p. m. during the fair. Those of special interest to readers of The Horticulturist are "Drainage of Farm Lands," by Prof. J. B. Reynolds, O. A. C., Guelph, September 1; "The Fruit Industries of the Dominion," by A. McNeill, Chief of the Fruit Division, Ottawa, September 2; and "Farm Forestry," by E. J. Zavitz, O. A. C., Guelph, September 6.

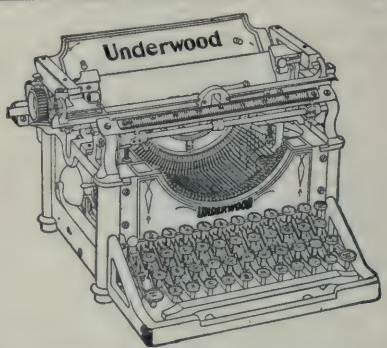
The extension of markets division, Department of Agriculture, has received information to the effect that the government of Cape Colony, South Africa, intends to enforce more strictly the existing regulations against the introduction of apples infected with the disease known as "black spot" (fusicladium dendriticum), or other fungous or insect diseases. Exporters of such fruit from Canada are warned that shipments found to be so infected will be liable to confiscation and destruction without compensation, under the provisions of the import regulations.

A close watch is being kept by the fruit inspectors of British Columbia for diseased fruit and culls coming into that province. During the last few weeks nearly 1,500 boxes of California fruit have been condemned by Inspector W. H. Lyne, of Vancouver. The California shippers do not believe in shipping subject to quarantine inspection and have united in refusing to do so. It has now been suggested that Vancouver fruit dealers unite to boycott the Yankee dealers unless the fruit is guaranteed. Mr. Lyne knows California conditions and says that there is plenty of healthy fruit to supply the needs without dealers trying to make a few cents more by selling such culls as have been sent.

The beautiful hydrangea which is pictured on the front cover of this issue is owned by Mr. S. E. Arnold, of Smith's Falls. This is a variety suited to indoor culture, known as Hydrangea Hortensis, the special name of this specimen being Otaksa Monstrosa. At the time the photo was taken there were 95 clusters. Mr. Arnold started this plant about 17 years ago from a small slip, and has given away many slips from it since then. It is kept outside during summer and allowed to become dry and lie dormant in the cellar over winter. Once every two or three years it is repotted.

An interesting case was settled at Lorne Park recently. Mr. W. C. Peer had contracted with the distributing company for all his berries at seven and a half cents, but was offered more elsewhere and decided to break the contract. An injunction was laid to prevent him selling to any other party, and he ultimately consented to abide by the contract for the remainder of the season.

Last autumn Messrs. R. B. Whyte and W. T. Macoun published a bulletin on "Bulb Culture for the Amateur," under the auspices of the Ottawa Horticultural Society. As it will soon be bulb planting time again, the authors would



THE UNDERWOOD

"Tried and True". Don't take our word for it. We are prejudiced. We can show you the **Underwood**, how it works and what it will do, but for the **Most Convincing Argument**, you will have to ask any of the 5500 users in **Canada**.

More **Underwood Typewriters** are in use in **Canada** than all other makes **Combined.**

We carry a large stock of rebuilt typewriters at very low prices. Send for Catalogue and List.

Headquarters for Supplies.

UNITED TYPEWRITER CO., Limited
TORONTO, ONT.

COLD STORAGE
—FOR—
APPLES

Linde Cold Air System, Perfect Ventilation, Right Temperatures, Centrally Situated, close to the principal Dealers.

COR. GREY NUN & WILLIAM STS. O. M. GOULD,
MONTREAL Manager

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

be pleased to learn through the columns of The Canadian Horticulturist from any persons who procured copies of this bulletin whether the advice given has proved satisfactory in practice, and if not, what changes are suggested in either the lists of varieties or in the methods of culture recommended. There was a large demand for this bulletin, but copies can still be obtained at 10c. each from Mr. J. F. Watson, Secretary Ottawa Horticultural Society, Ottawa.

The first Ontario apples reached Winnipeg on August 11th, on precisely the same day as they arrived last year. They were mostly Red Astrachans and of exceedingly poor quality. They were probably windfalls of neglected trees falling in grass, and did not show up well alongside of the carefully put up fruit from the United States and British Columbia.

The joint picnic of the Toronto, Hamilton and St. Catharines branches of the Ontario Vegetable Growers' Association at Hotel Brant Park on August 16 was a huge success. For one afternoon, growers with their wives and families to the number of over 2,000, forgot the hoes and the hoed crops and let enjoyment reign supreme. Handsome prizes were given for each of several events, which made up a fine programme of races, jumping, etc. Special interest was taken in the race for members of the association only, between 40 and 50 years of age, and in the one for members' wives only. Among the leading members present were Messrs. J. W. Rush, Humber Bay; Robt. Thompson, W. C. McCalla, G. B. McCalla, W. H. Bunt-

THE

Herbert Raspberry

From all quarters, where under trial, come good, enthusiastic reports of the Herbert Raspberry this season. It is justifying all the claims made for it, of being the Hardiest, Earliest, Most Delicious and Most Profitable Red Raspberry grown to-day. From 4 rows, 300 ft. long, were picked some 800 quarts.

Prices for fall delivery; plants, each 40c; dozen, $4; one hundred, $25. Cash with order.

To protect from unscrupulous persons, all packages will bear the Herbert Seal of this Nursery, which purchased the rights from the originator, Mr. R. B. Whyte, one of the foremost horticulturists of Canada.

WRITE FOR CIRCULAR

The Renfrew Nurseries Co.

LIMITED

J. C. ROCHESTER, Pres. W. E. SMALLFIELD, Vice-Pres. and Sec.-Treas.

NOW IS THE TIME

to order your Fall Supply of

FLOWER POTS, ETC.

Our stock is large and we can make prompt shipments.

THE FOSTER POTTERY CO.

LIMITED

HAMILTON, ONTARIO

MARCHMENT'S Sure Growth Compost

Supplied to all the largest nurserymen and fruit growers in Ontario. Shipments made by car or boat. Prices reasonable.

S. W. MARCHMENT,

Tel. Main 2841. Residence Park 951.

105 Victoria Street, TORONTO.

ESTABLISHED 1872.

PEACHES —AND— GRAPES

There are hundreds of first-class substantial grocers throughout Canada who would be glad to buy peaches and grapes, and other fall fruits direct from the grower.

An advertisement in **The Canadian Grocer** will put you in touch with these buyers and will cost you very little money.

We make no charge for preparing your copy.

WRITE US FOR PARTICULARS

The Canadian Grocer

10 Front St., TORONTO

Money Given Free to People who buy Goods from Advertisers in this Issue.

ing, St. Catharines; W. A. Emory, president of the Provincial Association; E. J. Mahoney, president of the Hamilton Association; E. D. Smith, Winona, and A. W. Peart, of Freeman.

Mr. McNeill, of the Fruit Division, Ottawa, has been interviewing the fruit dealers of the west. One dealer in Medicine Hat commented as follows: "Our trade is going almost exclusively to British Columbia. The western men grow better stuff, grade it more uniformly, use better packages, settle claims more promptly, and are in every way better business men than eastern fruit growers."

A report from Dominion Fruit Inspector Wartman, Montreal, states that the keeping quality of California Tragedy plums is something wonderful. Three specimens taken from different boxes of a car lot consigned to Glasgow via Montreal, were put in a drawer in his desk where a thermometer ranged from 70 to 80 degrees. After 10 days the plums were unwrapped from the soft paper and found to be in sound condition. These plums could easily be placed on the Glasgow market in perfect condition when the temperature during the ocean voyage is kept at 35 degrees.

Where Damage Occurs.—I believe sending unripe, uncolored, immature fruit to the old country markets does more damage to the fruit growers of this country than almost any other infraction of the act to prevent frauds in packing fruit.—(H. J. Scripture, Brighton, Ont.

Quebec Fruit Growers Meet

The summer meeting of the Pomological and Fruit Growers' Society of Quebec was held at Village de Mont St. Hilaire, August 23 and 24.

The meetings were ably presided over by Mr. Fisk, and Mr. Chapais did excellent work as interpreter. On Thursday noon Mr. A. McNeill, Chief of the Fruit Division, Ottawa, arrived, and the afternoon was given over to a general discussion and to a visit to a neighboring orchard. The various sessions were fairly well attended, especially that of Wednesday evening, when Prof. F. A. Waugh gave an interesting address on Flower Culture. The discussions were well sustained and to the point.

The programme included addresses on the following subjects: "Planting of fruit trees, care necessary to be taken. Fruit cultivation along the Gulf of St. Lawrence"—G. Reyneaud, Horticulteur, La Trappe, Que.; "Plums"—R. Brodie, Westmount, Que.; "Results following severe winter of 1903-4, and last winter upon tender varieties of fruit trees"—R. W. Shepherd, Como, Que.; "The Strawberry Leaf Rust"—J. C. Chapais, St. Denis, Que.; paper (subject not named)—N. E. Jack, Chateauguay Basin, Que.; "Notes on fruit meeting in western New York and Vergennes, Vt."—Wm. Craig, Abbotsford, Que., and "Some mistakes made in the past in the planting and after treatment of apple orchards in the province of Quebec"—Volunteers.

ATLANTIC REFRIGERATOR SERVICE

THOMSON LINE

Montreal and London Service

S. S. Hurona, cold storage and cool air, **Sept. 2nd**
S. S. Fremona, fan ventilation only, " **9th**
S. S. Cervona, cold storage and cool air, " **16th**
S. S. Kildona, cold storage and cool air, " **23rd**
S. S. Iona, cold storage and cool air, " **30th**

Direct service to Newcastle, Leith and Aberdeen. Sailing cards will be furnished on application.

DONALDSON LINE

Montreal and Glasgow Service

S. S. Kastalia, cold storage and fan ventilation, **Sept. 7th**
S. S. Tritonia, cold storage and fan ventilation, " **14th**
S. S. Marina, cold storage and fan ventilation, " **21st**
S S. Athenia, cold storage and fan ventilation, " **28th**
S. S. Lakonia, cold storage and fan ventilation, **Oct. 5th**

LORD LINE TO CARDIFF, fortnightly sailings.

FOR SPACE APPLY TO

THE ROBERT REFORD CO., LIMITED

STEAMSHIP AGENTS

Montreal, Toronto, Portland, Me., St. John, N. B.

TORONTO OFFICE: Room 110, Union Station **D. O. WOOD, Western Agent**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

What the Florists Did

A pleasant and profitable time was spent by the members of the Canadian Horticultural Association at their eighth annual convention, held in Montreal August 8, 9, 10 and 11. The business of the convention was transacted during the first two days, the last two being devoted to visiting leading gardens and points of interest in and around Montreal. In his annual address the president, Mr. Geo. Robinson, of Montreal, reported that the past year had been an encouraging one for professional florists as the demand for flowers had shown an increase.

The principal papers and addresses presented included an illustrated lecture on "Park Design" by Mr. Frederick D. Todd, landscape architect, of Montreal; an essay on "How to keep a greenhouse attractive in winter," by Mr. Thos. McHugh, of Dorval; essay, "How to keep grounds attractive in summer," by Mr. R. Burrows, of St. Anne de Bellevue, Que., published in this issue; a review of roses and carnations, by Mr. Wm. Gammage, of London, and an essay on violets by Mr. F. L. Girdwood, of Montreal.

Guelph was selected as the place for holding the next convention. The following officers were elected for 1906: President, Mr. Wm. Fendley, Brampton; 1st vice-president, Mr. Wm. Hunt, O. A. C., Guelph; 2nd vice-president, Mr. John Walsh, Montreal; treasurer, Mr. Herman Simmers, Toronto; secretary, Mr. A. H. Ewing, Woodstock; executive committee, Messrs. J. Suckling, Truro, N. S.; J. Eddy, Montreal; J. Campbell, Simcoe. It has been decided since the convention to start a new florist paper, the first copy of which will appear the first of this month.

Guelph Society Pushing Matters

This year 900 packets of aster seed were distributed by the Guelph Horticultural Society and a revised bulletin given with each packet. The children are greatly interested in the growing of these, and a love of flower culture that might have lain dormant is being brought into active life. Last spring several of our interested citizens donated shade trees, over 50 elms, oaks, maples, catalpas, etc. The society looked after the planting of them around the schools and churches and in the parks and streets. In order to prevent the havoc to the trees so often perpetrated, the society is endeavoring to look after those on public property. Our society also provided window boxes for the postoffice and city hall. The sight of large well filled boxes of green and bloom on the gray substantial stone buildings is most effective.

Monthly meetings have been very practical, usually taking the form of an informal discussion led by some member of the society. A deputation from the horticultural society waited on the members of the city council and the board of trade and asked their assistance in a campaign of civic improvement. To set the ball rolling a joint meeting under the auspices of the council, board of trade and horticultural society was held, when Mr. A. K. Goodman, Cayuga, gave an instructive address on civic

HYACINTHS ❧ TULIPS

NARCISSUS

CROCUS ❧ SNOWDROPS

OUR BULB CATALOGUE

describes the above and many other other kinds. **It tells how to plant**, when to plant, where to plant, and what to plant.

PAEONIES, HARDY PHLOX, CRIMSON RAMBLER AND HARDY HYBRID ROSES, ORNAMENTAL AND FLOWERING SHRUBS.

CATALOGUE ON APPLICATION.

J. GAMMAGE & SONS, = London, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

improvement, and our president, Rev. P. C. L. Harris, exhibited about 70 stereopticon views of unimproved and improved grounds, streets, school gardens, etc. We are indebted to members of the staff of the O. A. C. for much valuable assistance and information. It is our ambition to make Guelph the prettiest and best city of them all.—(Annie Rose, Sec'y Guelph Horticultural Society.

A bigger flower show than ever is being planned for this fall by the Kingston Horticultural Society. Plans are under way for the show on a larger and more complete basis than last year. Tickets have been printed and the prize list has been revised. A number of new classes has been added to the prize list, and prizes in open classes have been made more uniform.

A Splendid Spraying Machine

The Little Giant Sprayer is a machine which has grown rapidly in public favor since its merits have become known. After giving it a fair trial many leading growers have purchased one of these machines, among them being Mr. E. D. Smith, of Winona.

Mr. Smith has sprayed over 200 acres of nursery stock this spring and summer with a Little Giant Sprayer without a break or a dollar of expense, which cannot be said of any other sprayer on the market. Ninety gallons of Bordeaux mixture will spray two and a half acres, with over 15,000 trees per acre, and he has sprayed 12 acres per day with one horse. For power, cheapness and easy running it has no equal. It is the only machine on the market that was invented with a number of nozzles on either side of the machine that will spray two rows of grapes or raspberries at a time. This can be done by driving between the rows.

For peaches, pears, plums, cherries and apple trees two lines of hose with four or six clusters of nozzles on each line will spray any tree after the machine stops. For potatoes it is possible to spray four rows at a time, and for killing mustard all the user has to do is to sit and drive. A fair trial will readily convince growers that there is nothing like it on the market. It is rapidly taking the lead of all others, due to its intrinsic merits. Some of these machines will be on exhibition at the Toronto exhibition.

New Variety of Asparagus

A new French asparagus of great merit has been introduced by Stone & Wellington, nurserymen, Toronto. A good crop was harvested up to July. Bunches have been made of 20 stalks measuring eight to nine inches in length which weighed two pounds.

Although the stalks are so large they are perfectly crisp and tender, so that it is a great acquisition in every way. A Yonge street, Toronto, dealer on seeing a bunch which was shown in his store window remarked that if he had had asparagus like it early in the season he could have sold it for $1.50 per bunch.

THE MAYNARD PLUM

The greatest plum ever introduced by that "Wizard of Horticulture,"

LUTHER BURBANK

Offered for the first time in Canada, in Canadian grown stock, by

THE FONTHILL NURSERIES

THE MAYNARD PLUM is sent out by Mr. Burbank with the assurance that it surpasses in quality and beauty of fruit any plum heretofore introduced. We bespeak for the **MAYNARD,** through the hearty co-operation of fruit-growers everywhere, such a sale as Mr. Burbank's best efforts so richly deserve and merit.

We have bought the sole right to sell the **MAYNARD PLUM** in Canada, under a contract that gives Mr. Burbank a royalty on each tree sold, and will concede that he has well earned, by his long years of toil in the origination of new fruits and flowers, all that will come to him in honor and money from the sale of this new plum.

DESCRIPTION—Size, very large, often measuring 7½ inches in circumference. Form, nearly round, slightly flattened at the ends. Color, richest crimson purple. Quality, unsurpassed in flavor and as a shipper, fruit perfectly solid when dead ripe. Tree, hardy and vigorous, bearing immense crops while very young.

Write for descriptive circular and prices. See reading notice on page 285. Agents wanted for the **MAYNARD PLUM** and other **SPECIALTIES.** Write for terms and catalogue, and send 25c for our **HANDY ALUMINUM POCKET MICROSCOPE,** just the thing for Farmers, Fruit Growers, Florists and Botanists, Teachers, Etc.

STONE & WELLINGTON, - TORONTO

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

The Canadian Horticulturist

OCTOBER, 1905

VOLUME XXVIII NUMBER 10

THE SPRAYING DEMONSTRATIONS

PROF. WM. LOCHHEAD, O. A. C., GUELPH.

ALTHOUGH the results of the experiments conducted this season in the Niagara district, spraying grapes, have not been conclusive, yet the careful and impartial observer has been shown that those vines which were sprayed are freer from disease than those which were unsprayed. The main object of the experiments was to test the efficiency of the preparations which had been recommended for the control of the chief insect and fungous diseases of the vineyard and orchard, especially for the control of the grape rots and San Jose scale.

The work was begun and charted by myself, but was carried on in my absence by Mr. P. W. Hodgetts, Department of Agriculture, Toronto; Mr. T. D. Jarvis, O. A. C., Guelph, and Mr. Andrew Haynes, St. Catharines. Experiments were carried on at the following points: Mr. Murray Pettit's, Winona; Mr. Ambrose Pettit's, Grimsby; Mr. R. Kelly's, Beamsville; Mr. Bartlett's, Beamsville; Mr. J. Fretz's, Jordan; Mr. S. Overholt's, Jordan; Mr. Geo. Robertson's, St. Catharines; Industrial Home, St. Catharines; Mr. S. Shearer's, Niagara-on-the-Lake; Mr. Porter Adams', Queenston, and Mr. Berriman's, Stamford.

The first experiments began at Winona, April 13, while the trees and vines were still dormant. Applications of lime-sulphur were applied in some orchards for the control of the San Jose scale. In most cases this mixture was made without the application of steam. In the vineyards a one per cent. solution (4 pounds in a barrel of water) of copper sulphate was applied to certain check rows. Later applications of Bordeaux mixture were made in the vineyards about the second week in June, the first and third weeks in July, and the first and second weeks in August. A chart of the different experimental vineyards was carefully prepared at the outset and the plan was adhered to as nearly as possible throughout the season. The object of the chart was to determine what sprayings were absolutely essential and what sprayings were unessential for the control of the grape rots. Rows, or portions of rows, were left unsprayed as checks in every vineyard.

During September I visited the different experimental vineyards. The season has been a most favorable one for the grape grower. Even the most careless grower has had very little rot to contend with. For this very reasan the season has been an unfavorable one for experimentation. Practically no difference was noticed as to the effects of the different applications. At Winona the check vines, which were left unsprayed, had considerable mildew, but the grapes will not be injured to any extent. In a season, such as that of last year, these mildewed grapes would have been totally destroyed. The color of the foliage was

much brighter on the sprayed vines than on the unsprayed. At Grimsby the Black Rot was found on the vines which had been unsprayed, and, as at Winona, it was found that practically no damage had been done by the mildew, which was quite evident on the unsprayed rows and absent from the sprayed rows.

At Beamsville the check rows were the only ones that had Black Rot to any extent, and the owner of the vineyard was one of the first to recognize the fact that the spraying had kept the Black Rot away from his vines. At Jordan the row which only had the blue stone treatment in April showed considerable mildew. There was, however, one row of Moyer grapes which had been sprayed with Bordeaux five times during the season and which showed more Black Rot than any other row. The owner states that last year the grapes on this row were completely ruined by Black Rot.

At St. Catharines the results were very similar to those observed at Grimsby and Winona, the unsprayed vines showing the most Black Rot and mildew. An interesting lesson by way of comparison may be drawn from a study of a neighboring vineyard which had never been sprayed. Although this is a very favorable season for grapes. yet this grapery showed a great deal of Bird's Eye Rot, Mildew, and Black Rot.

PETRIFIED GRAPES.

At Niagara-on-the-Lake, Mr. Jarvis reports, the sprayed vines were very clean, but the unsprayed vines showed considerable Black Rot and Bird's Eye. At Stamford, Mr. Jarvis also reports, there was practically little difference between the sprayed and unsprayed vines—both being very free from disease. At Queenston a splendid object lesson was observed in a vineyard of Niagaras. On the check (unsprayed) vines "petrified" grapes and Downy Mildew were in evidence, but were entirely absent from the sprayed vines. The owner states that the Delawares which were sprayed were much better and cleaner than those which had been left unsprayed.

A very interesting side experiment was carried out in a vineyard along the Niagara river road. Only a portion of this vineyard was sprayed, but the grapes on the unsprayed portion were shelling very badly, and many of them were "petrified." Downy Mildew was very abundant in the unsprayed portion, and there seems to be no doubt that the "petrified" grape is due to the attack of that disease. The sprayed part of this vineyard had but one application, in July, but even with but a single application the difference between the sprayed and unsprayed vines was very evident.

In most of the orchards considerable injury was done by the Grape Berry Moth. Should this insect continue to trouble us for another season, it may be necessary to add some arsenic solution to the Bordeaux, especially during the June and July sprayings.

On account of the unsatisfactory condition of the season for spraying experiments the Government will be urged to conduct the same series of experiments in the same vineyards for another season at least. Grape growing is a very large industry in the Niagara region, and it is very important that the grape grower should have definite information as to the best ways of controlling diseases on the grape in the most unfavorable seasons.

The power sprayer possesses the following advantages: 1st, the same number of men will cover two to three times the tree surface; 2nd, only about one-half the quantity of spraying mixture is needed; 3rd, the work is much better and more effectively done.—(W. H. Brand, Vinemount, Ont.

It will not do to over-estimate the results of spraying, but I am satisfied that, with one or two exceptions, the growers about Ingersoll, in whose orchards we used the government power sprayer, were well pleased with the results.—(J. C. Harris, Ingersoll, Ont.

HOW FRUIT SHOULD BE PACKED

THAT Ontario fruit growers are anxious to learn the best systems of packing fruit in boxes was evidenced at the Canadian National Exhibition by the interested crowd of fruit growers present at the packing demonstrations given in the dairy building by Mr. B. T. Boies, an expert packer from Coldstream Ranch, Vernon, B. C. The growers were not satisfied to merely watch the work, but persisted in asking questions. These were answered by Mr. A. McNeill, chief of the fruit division, Ottawa, or by Mr. P. J. Carey, Dominion Fruit Inspector, Toronto.

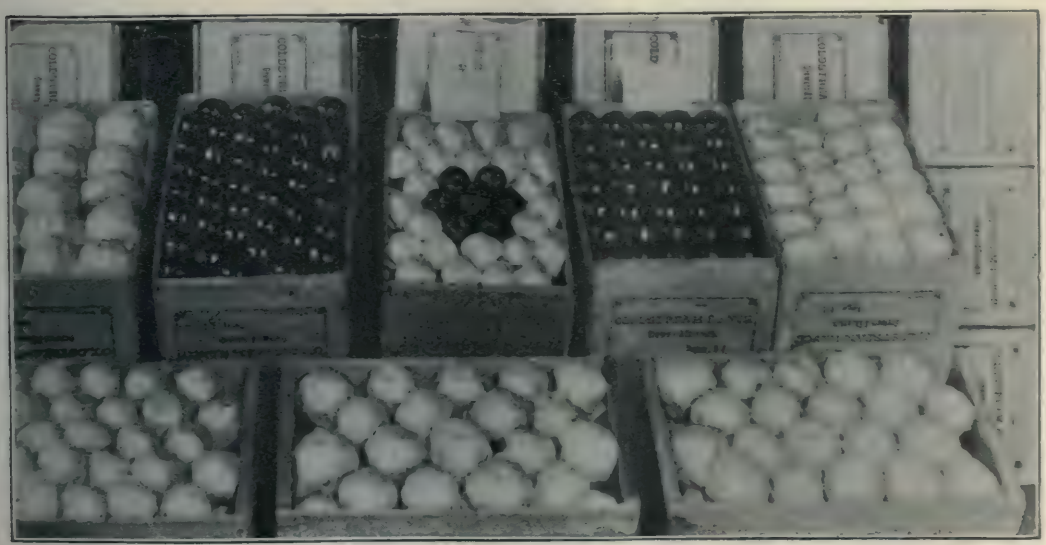
Mr. Boies showed that he had mastered the art of packing by the neatness and dispatch with which he handled the uneven samples that he was compelled to use. By placing in rows of two, three, four, five, etc., according to size, and the fruit on edge or on end, there are a total of about 60 different arrangements. The main point is to select that arrangement which will fill the box sufficiently full for putting on the cover and leave no slack.

Mr. McNeill was asked if he would recommend making large shipments in boxes. He replied he would not unless he had large quantities of first-class fruit. In British Columbia the growers use nothing but boxes and find their use pays. They should, he thought, also pay in Ontario. The British people are accustomed to our apples reaching them in barrels, and as they are slow to change they would look on our boxed apples with suspicion. The result at first would be they would not sell. It will take a few seasons to make Canadian boxed fruit popular on the British market.

In reply to a question regarding the use of foreign materials to face the box, Mr. McNeill explained that British Columbia packers use nothing between the face and the apple, but he said that it might be advisable to use pulp paper. Excelsior is condemned all along the Pacific slope.

THE BOXES ON EXHIBITION.

The boxes which had been in competition in the fruit building were criticized. Some packers had not used boxes of standard size. Others used paper fillers to avoid spaces. If the fruit did not come to the top of the box several folds of newspaper were put in instead. Other exhibitors made



How Fruit Is Packed in British Columbia—Note the Different Arrangements of the Rows

their boxes secure by means of steel bands and screw-nails. These practices cannot be allowed. They will not do in commercial packing. No matter how good the fruit, these defects would warrant the judges in throwing the entry out. Not a single packer had used the proper nails. The best nail is a round, corrugated wire nail roughened so that it holds in the wood. The next best thing is an ordinary nail resined or put in salt so that it will rust. Tight boxes are not wanted. The lids should never be nailed along the edges. Proper nailing at the ends and cleating is sufficient. If nailed along the edges ventilation is hindered and the fruit heats unless continually in cold storage, and the value of elasticity in the sides is removed. There should always be a bilge, and as the apples evaporate the spring due to this bilge goes in to take up the resulting slack. The cleats are essential because when stored the weight of contiguous packages should come on the cleats and not on the bilge. Dovetailed boxes are not wanted, as they are liable to burst open after being used a short time or if stored in a moist place. White spruce, free from knots, makes the best box. These can be made light and yet be strong, and spruce holds the nails well.

Some one wanted to know the quality of paper used in wrapping fruit. "The paper generally used," said Mr. McNeill, "is the regular duplex packing paper. It is calendered on one side and slightly thicker than ordinary paper. Any grained tough paper will answer the purpose."

An anxious grower remarked that there was no use packing apples in boxes when the Government will not take steps to secure the proper shipment of the fruit. Mr. Carey admitted that conditions were not the best, but claimed they were as good as they had been and growers had shipped with success for years.

"Orchardists object that the individual grower cannot ship his fruit," said Mr. McNeill, "but it is difficult to ship small lots of any commodity. Farmers should club together and ship in carloads.

"Cooperative packing establishments have been a success in several localities. Associations are incorporated for the trifling fee of 50 cents. The Government has lent aid by sending men to lecture on the advantages of these associations." The good work being done by the St. Catharines Packing and Forwarding Co. was mentioned to show what could be done in this line.

In reply to a question as to whether it would pay to use the California package for plums, Mr. McNeill said that it was not advisable for the local market, but that if we are to gain a place on the western markets that style of packing must be adopted.

Mr. Boies has been engaged by the Dominion Government to give demonstrations throughout the fruit districts. From Toronto he went to the Niagara district, and from there he goes east to Nova Scotia.

A TALK WITH MR. BOIES.

In an interview with The Horticulturist Mr. Boies said: "Growers in British Columbia have made a success of packing in boxes. Why cannot Ontario growers? In the west selling is done according to weight. A box of pears or apples is 40 pounds. Peaches, plums and grapes are put up in basket-crates, four square baskets to the crate, making about 20 pounds altogether. Many styles have been tested and these suit best.

There is a uniform standard along the coast from Mexico to British Columbia. In British Columbia the fruit inspectors will reject all fruit which is not in a standard package. One of the drawbacks in Ontario fruit conditions is the lack of a standard. Packages are allowed to come across the line in any package from a bushel to a

small hand basket. The result is the home grower does not know what he has to compete with.

"Growers in the west have no San Jose scale or codling moth to fight. These pests have been watched for since fruit growing began, and all diseased fruit or trees brought into the country is burned. In this way these fruit destroyers never get a hold in British Columbia.

NOT SUCH SLOW WORK.

"Ontario orchardists say that it takes too much time to pack their fruit in boxes. In the west an expert packer averages 70 to 100 boxes per day. He is paid at the rate of two cents per box. Since coming to Ontario I have packed a standard box and had it nailed ready for shipment in seven minutes.

"On the Lord Aberdeen estate at Vernon. B. C., about 40,000 cases of apples are handled in the fall. Pears and plums are handled in the same way but wrapped in paper for protection. To have this fruit keep well it must be picked at the proper stage of maturity and then handled with care. Along the pacific coast a barrel of fruit is unknown.

"Ontario fruit can be handled in the same way just as successfully if proper care is taken. Early fruits especially could be handled in boxes to great advantage. Since the varieties are tenderer special care must necessarily be taken. Wealthy apples are shipped from British Columbia to Dawson City, and although they have to be transferred four times they invariably arrive in A1 condition. The same fruit has been sent to Hong Kong and Sidney with similar results.

"Uniform fruit is the essential to speedy packing, and by putting only uniform fruit in a package the retail trade has something it can depend on. Over half of this grading for size is done when the fruit is small. The fruit is thinned on the trees, leaving each fruit equal chance for development. No patent graders are used after the crop is harvested. Each packer learns by experience to take only fruit of uniform size. The eye readily becomes trained. There are many ways of packing, but the main point is to have the exact package or a full box."

THE SPREAD OF THE SCALE

J. FRED SMITH, GLANFORD, SAN JOSE SCALE INSPECTOR.

IT is impossible to tell just how far the San Jose scale has spread in Ontario during the past year, as in some localities, such as those where very little treating was done, it has spread more than in others. In the county of Wentworth, where some scale has been found, I cannot see that the scale has spread to any appreciable extent during the past year.

This is due to the spraying which has been done by those who have the scale. East of the city of Hamilton, in the county of Wentworth, I do not know of a man who has the scale who did not treat his trees. The local inspectors see that this is done, and also watch to see how thoroughly the remedies have been applied. In the county of Halton, where there is a small infested district, the work has been done well until this year, when no treating was done. The people thought that they had the scale so well in check that they could afford to miss one year. This is a mistake, for what little scale there is left (and I found some when making an examination last spring) will multiply and become more firmly established.

In the Niagara end of the peninsula the spread has been more rapid owing to the indifference of some of those who have the

scale. There are no local inspectors and it is left to each individual to spray or not to spray as the spirit moves him.

HAS SPREAD IN KENT.

In the county of Kent the spread has been by far the greatest, as it is the exception to find a man who sprays. There is one section of this wonderfully fertile county where the work is done systematically. This is near the city of Chatham, where they have a regular cooperative association and where the spraying is all done by one gang of men who spray not only for scale but continue spraying for fungous diseases as well. I may say, also, that the packing and shipping of the fruit is all superintended by one man, Mr. W. D. A. Ross, and a more thoroughly efficient and practical man it would be hard to find.

In the scale centre of the county of Essex fairly good work has been done until the present year, when owing to the destruction of a large number of trees by the severe winters the people have become discouraged and I fear very little effort has been made to check the spread of the scale.

THE FRUIT INDUSTRY OF THE DOMINION

A. M'NEILL, CHIEF OF THE FRUIT DIVISION, OTTAWA.

A GENERAL survey of the fruit interests of the Dominion was given at the Canada National Exhibition by Mr. A. McNeill, Chief of the Dominion Fruit Division. The trade, Mr. McNeill said, is in a healthy, perfectly normal, but nevertheless critical condition. Each province has problems of its own. From Prince Edward Island on the east to Vancouver on the west there is a range of climate and soil that gives a great variety of fruits, including the tenderest apricot at one extreme and the crispy apple at the other.

There is this common experience that production has outgrown the consumption of local markets. Fruit growers, everywhere, are reaching out for the distant market. Many, however, do not realize the necessity of making material changes in their business to conform to the new conditions. It is a common practice to take the surplus that the local market will not absorb and send it to the distant market with very indifferent success. The fruit arrives in bad condition. Small prices and dissatisfaction is the result. The growers blame the transportation companies and the commission men, who do not fail to retaliate in kind.

Shelves Containing Harry Dempsey's Forty Varieties of Apples

As a matter of fact the problem is a new one. Reform must be in the work of all three. The varieties that are most excellent for the one market are not always suitable for the other; transportation facilities good enough for

a short haul would not do for the long haul; and the commission men would be more than human if they did not occasionally take advantage of the man whose property they controlled absolutely, but who cannot examine the truth of their alleged facts nor make any audit of their books.

The problem resolves itself into four main factors: 1, getting better shipping facilities; 2, producing one or few varieties; 3, securing cheaper freight rates, better cars and quicker dispatch, and 4, instituting a better system of selling.

St. Catharines Horticultural Society's Fruit Display at the Canadian National

In speaking of better varieties Mr. McNeill pointed out that private growers could not be expected to produce and introduce new varieties. It was peculiarly the work of the departments of agriculture, dominion and provincial, to undertake this development. The appropriations for this work would not be in the interests of the fruit growers alone. They would benefit less, probably, than any other class. The merchants and mechanics in the distant cities, in getting more and better fruit, would in the greatest degree be affected by the improvements.

Grading, packing and packages are questions with which the fruit growers can deal directly. Speaking particularly for Ontario and the Northwest, he expressed the opinion that these questions were fundamental. Having these in view the Canadian Department of Agriculture had secured the services of Mr. B. T. Boies from Coldstream ranch in British Columbia, an expert in grading and packing, with long experience in California and Oregon. Mr. Boies is showing eastern packers that proper packages and packing costs only a slight advance at initial points, and prices obtained have shown that this improvement is appreciated at the selling end.

As to the methods of selling, Mr. McNeill looked forward to the time when the shipping of fruit on consignment would be a thing of the past. The establishment of large fruit farms and cooperative methods among small growers would lead to direct sales where the buyer and seller would meet on equal terms to do business.

PICKLES—HOW TO MAKE THEM

R. BLANCHE MADDOCK, GUELPH, ONT.

"ARE pickles good for one?" is a question frequently asked. The reply cannot be given in Yes or No. It is something like the "pie" question—harmless if properly made and sparingly used, but generally used to excess.

Vinegar, if used sparingly in salads and pickles, has an exciting effect on the diges-

tive organs, causing the digestive juices to flow more freely, thus aiding digestion. However, if many pickles containing vinegar, mustard and such condiments are used the digestive organs are retarded, thus preventing the digestion of other foods.

CUCUMBER PICKLES.

The most common pickle is the green cucumber, and perhaps no other vegetable or fruit is so often spoiled in the pickling. I have seen cucumbers of all sizes gathered and put into a salt brine for several weeks. They were taken out and put in jars and hot vinegar and spices poured over them. These pickles, when served, have a color resembling sauer kraut in a stage of final collapse and are about as pleasing to the palate as olives to the untrained taste.

In making cucumber pickles that will retain their green color and give a crisp, dainty flavor, the best brine is made from one gallon of water to one and a half cups of salt. Only small or medium sized cucumbers should be used and left in the brine three or four days or longer if necessary. While in the brine cover them with a flannel cloth that has been rung out of boiling water. This collects any scum that may gather and also prevents mould. Before pickling take the cucumbers out of the brine and place in cold water for 24 hours. Then put in a clean white cloth to drain over night. Wipe and put them in the preserving kettle (not brass) with vinegar, spices, red pepper and sugar. Tie up cloves and small spices in cheesecloth. Add the red pepper and one cup of sugar to three quarts of vinegar. Cook slowly for two hours. Small onions may be done with cucumbers if desired.

MUSTARD PICKLE.

An excellent mustard pickle may be made as follows: Take one quart of small white onions, one quart green tomatoes, one quart green cucumbers, three green peppers, one head of cauliflower and three heads of celery cut fine. Cut the cauliflower, tomatoes (and cucumbers if necessary) in fairly small pieces and add a dressing made of the following. One-half cup flour, one-half cup mustard, one-half ounce mace in water. To this add one cup sugar, one-half ounce butter, and one and a half quarts of vinegar. Cook all together, stirring gently, till boiled. Then pour this over the vegetables and let stand at simmering point one hour before bottling.

GREEN TOMATO PICKLES.

Slice one peck of green tomatoes, six green peppers and four onions, strew a cup of salt over, and let stand over night. In the morning pour the water off and put in a kettle with a tablespoonful of ground cloves and the same of allspice and cinnamon tied in cheesecloth. Cover with vinegar and boil until soft, after which they may be bottled.

Chowchow can be made by taking one-half peck of green tomatoes cut fine, one-half peck of small onions, parboiled; one-half peck small cucumbers, nine or 10 sweet peppers cut fine, one head of cabbage cut fine, one head of cauliflower (parboiled), one-half cup of salt, a large tablespoonful of turmeric, half pound of ground mustard, one pound of sugar, one-half teacupful of cornstarch, and vinegar to cover. This should be put over a fire and let come to a boil. After standing for one hour on the back of the stove it can be bottled.

Ripe tomato sauce is made from one-half peck ripe tomatoes, four onions, one-half head cabbage, six tart apples, one-half pound raisins, three-quarters of a cup of brown sugar, four tablespoonfuls of salt, three of ground cloves, two of allspice and one quart of vinegar. Chop tomatoes, onions and cabbage separately, and let them stand over night. In the morning drain off the liquor and mix with the other ingredients. Boil slowly for one-half hour or until the tomatoes and cabbage are soft.

TOMATOES ALL WINTER.

While tomatoes, both green and ripe, may be used in making pickles and sauces innumerable, everyone prefers them sliced and served raw. With care they can be kept fresh and whole all winter. Select only medium sized, round ripe tomatoes. Cut off the green stem carefully in order to leave the top of the tomato sealed. Care should also be taken that the skin is not broken or bruised. Take a large stone crock, with smooth unchipped lining, and half fill it loosely with the tomatoes. Then add water that has been boiled and cooled. Lastly ring a flannel cloth out of boiling water and spread over the top of the crock. In a short time a scum will rise and gather on the cloth. This should not be removed unless it gets very thick, as a slight scum on the cloth collects any germs that may settle and prevents them from injuring the tomatoes.

PICKLED FRUITS.

Peaches and pears are excellent when pickled. Select small but nicely matured fruit. After peeling put one or two cloves in each pear or peach and drop them into hot vinegar in which sugar has been dissolved (one cup of sugar to one and a half cups of vinegar. Tie up cloves and cinnamon in cheesecloth and allow all to cook until fruit is tender (about 15 minutes). They should be bottled while hot. Talman Sweet apples make a delicious pickle done the same way. The apples should be cut in quarters and cooked until bright yellow. They should also be dipped out immediately, because if allowed to stand in the vinegar they become dark.

MAKE USE OF THE CULLS.

Some use should be made of the cull fruit that is allowed to waste year after year. Small peaches, pears and apples may be gathered up, washed and put into the preserving kettle, stones, skins and all. Put on sufficient water to stew without burning. When soft put through a cullender and return to a slow fire with sufficient sugar to sweeten. If allowed to simmer slowly for one-half hour this makes a delicious marmalade for pies or cakes.

In cities large quantities of so-called jam is sold every year, made in most cases of one-half fruit and one-half turnips, carrots, and other vegetables. Girls on the farm might make a good deal of pocket money by gathering the waste fruit, making it into marmalade and selling it at the stores.

Wintering Canna Roots

WM. HUNT, O. A. C., GUELPH.

When should canna roots be taken up and where should they be kept until spring ?—(J. W., Kincardine.

After the foliage of cannas has been blackened by frost, and before the roots are touched, they should be dug with a small quantity of earth adhering to them and placed under the veranda or in a shed or out-house safe from frost, and allowed to remain for about a week or two or perhaps more, being careful not to allow them to be touched by frost.

Remove the roots before severe frosts to a rather dry warm place in the cellar and keep them in a temperature never lower than 45 degrees, and not higher than 70 degrees. Canna roots will not winter successfully in a cold, wet cellar, but be careful to avoid the opposite extreme of a very hot dry position near the furnace, as this is equally as injurious to them as a cold wet position. If the cellar is of necessity very hot from furnace heat, pack the roots in dry sand or earth and keep them in the coolest part. Florists usually winter canna roots under the greenhouse benches.

THE HAMILTON HORTICULTURAL EXHIBITION

THE fruit, flower and vegetable exhibition held in the Thistle Rinks, Hamilton, on September 12-14, was a complete success in that it created an increased interest in general horticulture. Owing to its being a very busy season with the fruit growers and to the fact that the fruit and vegetable growers of the Niagara District did not seem to fully understand the objects of the show, the exhibits of fruits and vegetables were not as large as might otherwise have been the case, but were very creditable nevertheless.

On Wednesday the school children of the city were given a half holiday and over 1,700 of them attended the show. A most successful excursion to the show was run by the enterprising St. Catharines Horticultural Society. These features added greatly to the success of the exhibition.

The prime object of the promoters was to aid the fruit, vegetable and amateur flower growers of the Niagara district, and in this they were most successful. The opinion of Mr. Roderick Cameron, of the Queen Victoria Park, Niagara Falls, is that the display of flowers in several ways eclipsed anything before held in Ontario. "It is a very creditable show," said Mr. Cameron, "and of special value to the amateur."

The rink in which the flowers were shown growers. A special feature of the work done by the Hamilton Horticultural Society was shown in the great display of window boxes and hanging baskets. The window presented a most pleasing appearance. The cut flowers, especially the gladioli and asters, were excellent. Encouragement had been given to the growing of every variety. Prizes were offered principally to amateur boxes, over 20 in number, added much to the appearance of the building with their profusion of foliage and flowers.

The display of commercial plants, including not less than 100 square feet area, deserves special mention. There were four entries, and the judges remarked that for real value they surpassed anything ever on exhibition at Toronto. The special features of the one which got the red ticket were the elegant group of palms of different varieties of which the centre-piece was composed, the Cocos Weddelliana palm, which is one of the most graceful for table decoration, and the elegant ferns. A little more color on this group would have made it nearly perfect. In the table which won second prize, the Araucaria excelsa, was the best in the show, and the color effect was good, but the centre-piece Ficus elastica, was rather tall and ragged. The centre-pieces were the weak points of the other two entries.

A fine sample of the work done by horticultural enthusiasts in Hamilton was seen in an excellent display of native ferns by Dr. Storms. The doctor had a collection of 33 varieties of ferns native to Canada, each carefully numbered and the names typewritten so that everyone could get the correct name. Some of the varieties, such as Asplenium augustifolium, Aspidium Goldieanum, Polypodium sculari and three specimens of the royal ferns are very rare. As a further encouragement to fern growing Dr. Storms purposes offering a special prize next year for a collection of ferns.

The pendulous fuchsia, the variegated leaved begonia, the scarlet Salvia, the twining English ivy and many specimens, such as the Rubber plant, Dracena, Oleander and palm, plainly demonstrated the place of the amateur at the show.

It is claimed by Mr. Cameron that Canada is sadly lacking in evergreen shrubs and plants to decorate her landscape in winter and afford shelter and protection to our numerous birds, which are forced to go south when cold weather comes. To show what can be done to change this state of af-

A Portion of the Cut Flower Exhibit

fairs he had on exhibition over 100 varieties of evergreen plants which withstand Jack Frost's attacks at Niagara Falls.

PRIZE WINNERS.

Prizes were awarded to such well known amateurs as Wm. Colvin, J. Sweetlove, J. O. McCulloch, Dr. Storms, L. C. Hildebrand, A. O'Heir, A. Alexander and numerous other flower lovers of the city. For window boxes Mr. W. Newberry won first, A. O'Heir second, and J. Sweetlove third. Miss Elsie McCulloch won the red ticket for bouquet of garden flowers, Mrs. A. G. Pettit secured second and Mrs. Wm. Cox third.

In professional or commercial plants or flowers the prizes were divided among The Webster Floral Co., Walter Holt, Sones Bros., E. G. Brown, Chas. Mason and H. P. VanWagner, of Hamilton, and P. Murray, of Niagara Falls. The Webster Floral Co. won the silver trophy which was given to the professional making the best display in the commercial class. The Steele, Briggs Seed Co. had a fine display of bulbs, seeds, flower fertilizers and sundry lines handled by that firm, while the Foster Pottery Co. had a show of their well known flower pots.

The show of vegetables was conspicuous on account of its absence. Many growers who had made entries claimed that the wet weather of Monday previous to the show prevented them from collecting the vegetables, while others decided not to enter the competition because they did not expect the show was going to be in their line. The specimens of vegetables shown were good, and it is to be hoped that next year will find the vegetable department full. The prizes went to F. Sinnet, J. Tregunno, M. E. Burton, D. A. Hyslop, A. Davis and G. E. Horning.

IN THE FRUIT BUILDING.

The condition of Ontario's fruit crop for 1905 was plainly shown by the exhibit on the benches. Apples were of fair size but very much lacking in color. Peaches, though a good crop, were very scarce, probably because they are late in ripening, and only a few varieties were sufficiently mature for exhibition purposes. Pears and plums were perhaps the best, although there was also a fine display of grapes.

The most creditable as well as the most instructive feature was the display of fruits from the Experiment Stations of the Niagara district. Too much praise cannot be given the Ontario Department of Agriculture for sending this exhibit, nor to Mr. L. Woolverton, of Grimsby, superintendent of the Experiment Stations, for the tasty arrangement of the different fruits. Six tables were filled with the exhibit and everything was carefully labelled. Placards such as "These varieties of Japanese plums

were originated by Luther Burbank, the wizard of horticulture. They are wonderfully productive, but not equal to the European plums in quality"; "First-class commercial pears for home market—Giffard, Clapp's Favorite, Bartlett, Boussack, Anjou"; "The best dessert apples to cover the season are Sweet Bough, Chenango, Fameuse, Louise, Swazie and Spitzenburg," and "The King, Spy, Greening, Baldwin and Russet apples are the leading commercial varieties," were placed here and there on the tables, and Mr. Woolverton was there all the time to answer questions.

The chief object in arranging this exhibit was to give information regarding desirable and undesirable varieties. This point was well brought out with grapes. One large table was filled with varieties from Mr. M. Pettit's experimental plots, which are not recommended. This could be made a very valuable feature if the same were done with all the fruits and a display similar to the one at Hamilton made at all the leading fairs. There are about 150 varieties of grapes grown in Ontario, and from these the secretary recommends Lady, Green Mountain, Niagara and Diamond for white; Moore's Early, Worden, Concord and Wilder for black, and Lindley, Delaware, Brighton and Agawam for red. These 12 cover the season and are excellent varieties. For the home garden Moyer (red), Early Ohio (black) and Green Mountain (white) are recommended.

From the Burlington station Mr. A. W. Peart sent a mixed collection of currants beautifully put up in formalin. The branches with the fruit attached had been preserved. Besides these there were some good pears and apples from that station.

Three large tables were covered by fruit from Mr. Woolverton's plots at Grimsby. Many bottles were filled with the different fruits nicely preserved in salicylic acid. Japanese plums were a feature on one of these tables. The secretary informed The Horticulturist that these plums are much inferior to the European varieties and are never likely to take their place for domestic uses. Golden Prolific and Hale are recommended as the best, while Red June and Abundance are good but not yet ripe enough for exhibition purposes.

Another interesting and instructive exhibit was that of insect and fungous diseases. This display was also due to the action of the Department of Agriculture and was in charge of T. D. Jarvis, B.S.A., of the Entomological and Zoological Department of the college. Specimens of fruit from trees infested with San Jose scale had been collected from trees which have been sprayed and from unsprayed trees. Although these samples had not been selected to show the best fruit from sprayed or the worst from unsprayed trees, the benefit of spraying was clearly demonstrated.

Specimens of plums, peaches, cherries and grapes affected with rot, pear scab and grape mildew were in this collection. Small vials containing the different spraying mixtures and the formula for making each, weeds and weed seeds and infested branches, leaves or fruit, showing the effect of insect or fungous attacks made up the balance of this exhibit. Large magnifying glasses were supplied, and under these specimens of the scale and fungous diseases were examined by those interested.

The Women's Institutes had a booth, and anxious housekeepers received many valuable hints on the methods of canning and preserving from Misses Smith and Shuttleworth.

A display of jams by E. D. Smith, of Winona, added much to the appearance of the building, and many went on their way rejoicing with a small jar of this excellent brand of jam. The famous "Little Giant Sprayer" was the only sprayer present.

As the gate receipts were nicely ahead of the estimate the management feels well pleased with the success of their venture.

SUCCESS WITH APRICOTS

THE apricot is generally supposed to be much less hardy than the plum. There are, however, some varieties which thrive wherever plums do if clean cultivation is given during the early summer and protection by means of cover crop or mulch during winter. A member of the staff of The Horticulturist saw two fine trees well laden with fruit in the garden of Mr. John Ewing, of Rosemont, last August.

The garden in which they stand is almost level, but immediately to the north the land slopes to north and west. Protection is given on that side by two rows of walnut trees with a row of Russian mulberries between.

"I procured the trees from a Canadian nursery firm over 12 years ago," remarked Mr. Ewing. "They were set where they now stand as early in the spring as the ground was fit to receive them. Both have done well and I get a good crop every second year. The greatest trouble is keeping them from blooming too early. To retard the bloom I put a heavy mulch of sawdust around the trees after the frost is in the ground. In this way I can delay the blossoms 10 days and sometimes longer.

"The soil is a nice clay loam and is always kept cultivated. They bear as heavily as plum trees of the same size, and the fruit makes excellent preserves. The fruit ripens about August 15, or slightly before the plum crop comes in."

Cut Out Old Canes

"WHEN the crop of raspberries is harvested," said Mr. J. A. Pettit, of Grimsby, to a representative of The Canadian Horticulturist recently, "I go through the patch and cut out all the old canes and leave them lying on the ground between the rows until the following spring. They hold the snow and thus are a protection during winter. When the snow is gone I trim off the tops of what canes were left to about three feet high, and all rubbish is removed and burned."

"As soon as the raspberries are done," says Mr. J. M. Metcalf, of Grimsby, "I go through the patch with a spade and take out all old and diseased canes. These are burned so that the diseases will not have a chance to spread. My patch has been running about 16 years and gives fruit of as good quality as it did the second season."

The method adopted by Mr. A. W. Peart, the well known fruit grower of Burlington, is to prune out all old wood and superfluous young wood as soon as possible after the fruit has been harvested. "The sooner it is done the better," said Mr. Peart, "because the strength which goes to the superfluous young wood should be going to the bearing wood of next year. It is not wise to leave the canes which are cut out on the ground because they harbor mice and fungous diseases. They should be burned immediately."

Buying New Raspberry Plants

"WHEN getting in a new variety of raspberries from a distance," says Mr. J. A. Pettit, of Grimsby, "it pays best to get only enough to plant a few rows. Then the young suckers can be taken from these the following spring, when just coming up, and the remainder of the patch set out. This can be done with success if the young plants have not to be transferred too far."

Columbia raspberries yield more to the acre than the Cuthbert, but they are not so good for table use.—(W. A. Best, Picton,

---

We are apt to form our opinions of the people whose homes we pass on our way to and from business by the neat appearance or otherwise of their home environments.—(P. G. Keyes, Ottawa, Ont.

BULB POTTING AND PLANTING

WM. HUNT, O. A. C., GUELPH, ONT.

TO secure early flowers from winter and spring flowering bulbs, the bulbs should be potted early in the autumn. A few of the early flowering Roman Hyacinths should be potted. There are several colors of these easily grown. The white variety is the best.

Three bulbs can be put in a four or five-inch pot. No drainage, excepting the hole in the bottom of the flower pot, is necessary. When grown properly, these and all similar kinds of bulbs require all the room in the pot for roots, without putting in cinders, etc., for drainage. Dutch Hyacinth bulbs should be put one in a four or five-inch pot. These can be had in a variety of colors, single or double.

Almost all varieties of the Narcissus family succeed well when grown in pots for the window. The Paper White is about the earliest flowering and is easily grown. The rather rank odor of its flowers are, however, objectionable to some people. The following varieties will be found to be good for growing in pots: Poeticus, Poeticus ornata, Von Sion (true Daffodil), Golden Spur, Horsfieldii, Emperor, Bicolor, not forgetting a few of the sweet-scented Jonquils. Two or three bulbs of Narcissi can be planted in a four or five-inch pot.

Tulips, Crocus, and Snowdrops will not give as satisfactory results in pots as those just mentioned. They are better for planting out of doors in beds or borders.

In potting bulbs use fairly rich loamy soil. Press the soil firmly around the bulbs, leaving the surface about half an inch below the top of the pot. Water them so that all the soil is well moistened. Then stand the pots where they can be covered with two or three inches of coal ashes, sand, or light garden soil until the bulbs are well rooted. About five or six weeks in this condition is usually sufficient to enable them to secure good roots. Securing good roots to the bulbs, before they are brought out into the light, or before they make much top growth, is the great point to be gained in the pot culture of bulbs.

A good place to bury the pots is in the garden where they can be protected with leaves if severe frosts set in, or the pots can be put in a cellar or root house and covered up as directed. The pots can—after the bulbs are rooted—be placed in the window at intervals of a week or two to ensure a succession of flowers.

Bulbs of the kinds mentioned may be potted as late as December or even later, but the earlier potted bulbs usually give the best results, as the bulbs lose vitality to a certain extent when kept dry too late in the winter.

A GENUINE HORTICULTURIST

RODERICK CAMERON, NIAGARA FALLS SOUTH, ONT.

RECENTLY I enjoyed spending a few hours at the residence of Mr. James Goldie, in Guelph, and was much impressed with all I saw and heard. Mr. Goldie and his guid wife seemed to possess the secret of youth and of happiness, which secret I felt was in some mysterious way connected with their daily study of horticulture. Truly they live very near to nature's heart. With the hope that the readers of The Horticulturist may get a glimpse of what so delighted me and perchance an inkling of their secret, I venture a short report.

Mr. James Goldie, of the People's Mills, of Goldie & Sons, Guelph, is a name familiar to most Canadians. As a man of business he has been eminently successful. In early life Mr. Goldie, who is now 83 years

A Corner in Mr. Goldie's Garden

old, and who has retired from active business, took up the study of gardening, which he thoroughly mastered because it was to him a labor of love. After entering on a business career he still devoted much time to his favorite study, until to-day he is not only one of the most ardent advocates of floriculture in the Dominion, but he is also one of the most enthusiastic botanists.

The artistic manner in which the grounds around his fine residence are laid out with the choicest of trees, shrubs and flowering plants bespeaks his knowledge, his culture, and his refinement. They seem truly the visible expression of his inner self. To see these choice and valuable plants in such a variety and in such abundance surprised and delighted me.

Notable among these plants were to be seen the Gentian Acaulis, an old inhabitant of British gardens, but in this country very rare. It grows six inches high, producing tubular blue flowers, and is one of the most beautiful of hardy perennials. There was, also, the best collection of Primulas I have seen in Ontario, and in many species and varieties. The Violas or tufted pansies are the finest in the Dominion. His varieties of perennials are legion. Nor have the orchids been overlooked. They can be seen in large clumps in select spots in the garden. The lily family, too, have a place, and the Retinospora plumosa, R. plumosa aurea, R. obtusa and many other varieties of evergreens also seem to be at home.

The ferns are great favorites with Mr. Goldie. Among his collection may be seen a large number of the rare fern, Aspidium Goldieanum, one of the most beautiful native ferns we have. This fern was discovered and named after John Goldie, Mr. James Goldie's father, who, being a great botanist, was sent out to Canada by the British government before the time of trunk railroads, on a botanical expedition. At that time Mr. Goldie had to foot it from Montreal to Albany.

From his father Mr. Goldie has inherited his love for the beautiful, and this heritage he would perpetuate to all within his reach for Mr. Goldie is not content to live to himself alone in his garden of the beautiful, but is ever active in trying to promote more love for floriculture. He has probably imported and exported at his own expense more plants and seeds than any other private in-

dividual in the province. Mr. Goldie is a public benefactor in the strongest sense of the term, though perhaps because of his quiet method of working there is no other public benefactor who is receiving less cognizance for his achievements.

Mr. Goldie holds the view that horticulture is ever the forerunner of all other successful cultivations, hence his zealous desire to promote the love for flowers. The gardener's position he would elevate; the ideal gardener has to him as large an outlook and as broad a field as that of the so-called learned professions. The pruning knife in the hands of his ideal gardener can be handled he maintains with as much love and dignity as can the knife of the surgeon.

Mr. Goldie's love for the beautiful, though confined in early life mostly to the flowers, has broadened with his years. Birds and animals now have a share in his affections. The fine arts, too, have a place. Inside his home may be seen many beautiful and costly paintings, statuary and cases of stuffed birds, while outside pans of water and food stand here and there. The birds, the beautiful and now rare wood duck, the English, the Golden and the Silver pheasants, are being domesticated in numbers by domestic hen. The birds from the tiny wren to the proud black swan seem to know their host and to enjoy the provision made for them. Even the English sparrow that is despised by the majority of agriculturists have a friend in Mr. Goldie, and it is pleasing to see the delight he takes in telling in a whisper (so that the farmers do not hear him) that he imported the sparrow.

View in Mr. Goldie's Lawn

We should encourage amateur floriculture because well kept gardens and grounds are pleasing to others as well as to ourselves. They make our homes beautiful, and also our city. The love of culture of flowers has a refining influence on all and the presence of flowers must tend to the good of our children.—(E. Mepsted, Ottawa.

The geranium is the most popular window plant, as it is so easy of culture. Given a fair chance, it seldom fails to bloom during the winter.—(Mrs. W. J. McLenahan, Appleby, Ont.

For exhibition purposes cut asters with as long stems as possible.—(Wm. Hunt, O. A. C., Guelph.)

Flowers at the Exhibition

THE exhibit of annuals and perennials at the Toronto exhibition was fully up to the average. Special mention can be made of the sweet peas shown by Mrs. Johnston, of Lennoxville, Quebec; the asters shown by J. H. Lock, and the dahlias and gladioli shown by W. Rennie & Co. Among the many prize winners were the following: W. Rennie, J. H. Lock, Steele, Briggs Co., W. J. Hare, Toronto; C. Scott, J. W. Stockdale, Jas. Ogilvie, H. L. Oakenden, Peter Stevenson, A. M. Wilson, E. Grainger, Peter Murray, E. Byfield, and others. In was the opinion of different exhibitors that a more unsuitable building would be hard to find in which to exhibit flowers. Nature's most beautiful products should have a better building. No other class of exhibitors have been given as little attention as the flower and fruit growers. It is time for a change.

Pruning Hedges and Shrubs*

WM. HUNT, O. A. C., GUELPH, ONT.

What is the best time of year to prune cedar hedges, syringas, etc.?

About the end of April or early in May is the best time to prune a cedar hedge. It should be done before the new growth commences, which is usually about the end of May. Many prefer trimming or pruning evergreen hedges in the fall, as there is usually more leisure time at that season of the year. The objection to fall clipping or pruning of evergreens is that it leaves them bare and rusty looking all winter, the season of the year when evergreens in good color are the most appreciated and admired.

Syringas and almost all flowering shrubs can have all the pruning they require at almost any time from early spring until fall. A large collection of flowering shrubs that I planted over 25 years ago have been kept in splendid shape by an annual pruning or thinning out of the most prominent shoots here and there where required when the shrubs were in flower. If carefully done they can be prevented from growing too large and kept symmetrical and natural looking as well. Flowering shrubs should never be clipped with the shears in July, as is too often done, as it removes almost the whole of the flowering wood for the next season. Besides, it gives the shrub an unnatural appearance. The Hydrangea Paniculata Grandiflora is an exception to this system of pruning. This plant should have the young growth pruned back either in early winter or early spring when the wood has ripened well. The young wood should be pruned back so as to leave three to six inches of the base of the young growth. These spurs will throw good strong blooming wood the following season.

* A question asked at the convention of the Canadian Horticultural Association, held in Montreal during August.

Flower Notes

IN SELECTING PANSIES for a show it is a strong point to have the belting or margined colors as perfectly defined as possible. To secure this it may be necessary to shade the flowers from the sun should it be very bright weather. Pick the bloom with as long a stem as possible, and in arranging them in the dish or vase keep the colors as distinct as you can, as it will help to bring the different shades into effect.—(E. F. Collins, Toronto, Ont.)

Water your plants well before bringing them in and they will not need much water for the first week or two. After they have become accustomed to the change and begun to grow, water twice a week, and when the days grow longer, three times a week. Perhaps some will need more. I had some pans made to fit my shelves and find them a great improvement on the old way of having saucers for each pot.—(Mrs. W. J. McLenahan, Appleby, Ont.

PERENNIALS FOR CUT FLOWERS

RODERICK CAMERON, NIAGARA FALLS SOUTH, ONT.

COLOR and variety in perennials are legion. For this reason it is a very difficult matter to decide on the specimens which suit best. No two persons have similar tastes in this regard, and perhaps no two would select the same plants. However, there are numerous good species which give general satisfaction.

PRIMULA—PRIMROSE.

The hardy primroses are among the most beautiful of our spring plants. Primula vulgaris, and the garden forms of it, thrive admirably at Niagara Falls. The climatic conditions help in this, but the soil in which they are grown is the principal agent. It is a loose, rich, black loam that is always moist. Primula officinalis, or cowslip, and Polyanthus thrive under the same conditions. On account of their early flowering (May) they are valuable as cut flowers. They take kindly to pot culture also and are grown for the decoration of conservatories. They grow from eight inches to a foot high, and in several shades of color. They are not reliably hardy in northern sections and should be protected.

CONVALLARIA—LILY OF THE VALLEY.

This plant is well known to everyone, and is noted as a cut flower the world over in June. It grows to a height of about nine inches.

PEONIES—PEONY ROSE.

Peonies bloom in June, and are among the noblest and most beautiful of hardy plants. They are practically indispensable as cut flowers and for the border, and are beautiful in foliage without flowers. There are to be found among them every shade of color imaginable. The Anemone flowered varieties are the best and most beautiful and they are as hardy as the others. There are several excellent varieties among the tree peonies that should be grown by all lovers of flowers, particularly the variety Montan, upon which I have counted as many as 150 open blooms at one time. The tree peonies are not reliably hardy everywhere; therefore, I would rather advise the planting of the herbaceous sorts. The following half-dozen will be found among the best: Grandiflora, pure white; Carnea triumphans, large flesh color; Dr. Andry, rose, centre light, extra good; Edulis superba, extra large, color carmine; Anemoneflora, one of the best of the genus, bright rose color.

ANTHERICUM—ST. BRUNO'S LILY.

I find if these are grown in clumps they are very beautiful, graceful, and fine to cut for small vases. The flowers are pure white and very hardy. They are also very fragrant. I grow two varieties, Liliastrium major and Liliago, height two feet. They bloom in June. I find Liliastrium major to be the best, yet they are seldom seen in gardens.

RUDBECKIA—CONE FLOWER.

There are many excellent varieties among these suitable for the border. They are admired by many for the gorgeous display they make when in bloom. They may be classed among the flowers familiarly known as "cut and come again" variety. Golden Glow needs no description, but I would advise cutting off one half its growth. This will prolong its blooming season two weeks and do away with the necessity of staking. The flowers will be just as large and produced just as freely as if they were allowed their freedom. The best varieties I find to be Golden Glow, yellow, eight to ten feet high; Californica, dark centre, yellow, four feet high; Newmanii, yellow, dark centre, two feet high, and our native variety, which is not to be despised, named Hirta, yellow, dark centre, 2 feet high. All bloom in August and September.

The pinks resemble carnations in foliage and flower and in fragrance, but the plants are shorter. They are equally good for cutting. The following will be found among the best varieties: Dianthus plumarius, garden or Scotch Pink; Dianthus plumarius alba plena, double white pink; dianthus plumarius roseus pleno, double, rose color. They bloom in June and grow to 18 inches high.

THE IRISES.

The Irises resemble each other in foliage and habit. Some produce flowers eight to 10 inches across, and in every shade of color found in flowers, many equalling tropical orchids. They are prized highly as cut flowers for vases, and as decorations for bridal parties. I will name six of the Germanicas first: Atropurpurea, purple, early; Aurea, golden yellow, very good; Florentina, white, free, sweet scented; Flavescens, primrose yellow, large and fine; Innocence, pure white, one of the best; Mad Chereau, white edged violet, good. Height two to three feet. They bloom in June.

The Iris Kœmpheri bloom after the Germanicas. Blue Danube, indigo blue, yellow center; Eclipse, reddish purple, very good; Malmaison, light veined with blue; Othello, rich purple, lighter center; Turban, light pink, purple center; Orion, reddish pink, are among the best of these.

ASTILBE OR HERBACEOUS SPIRÆA.

All varieties of these plants are very free blooming. There is nothing more graceful as cut flowers for all purposes, and they are very hardy and easy of culture in any good garden soil. They flower during June and July, and their color is pure white to bright pink. They grow to a height of two feet to six feet. The following will be found to be the best. Spiræa filipendula flore pleno, two feet, producing pure white double flowers; Spiræa palmata, two to three feet, flowers bright pink; variety Palmata alba is the same in every way, but produces white flowers; Spiræa palmata elegans is one of the most beautiful of all, flowers light pink, in long spiral plumes, four feet high; Spiræa Japonica compacta is one of the best and is much used for forcing, two to three feet, flowers white; Spiræa, variety Gigantea, grows to six feet high, flowers pure white in large flat panicles.

LILIUMS.

The liliums are pronounced to be the choicest of all cut flowers, but I would not advise the general growth of them unless the soil and situation are suitable to their requirements. They degenerate and are damaged by heavy freezing on ordinary soil in exposed places. They can be grown fairly well in all soils, but there must be fresh imported stock added from time to time, as two years is their limit. Most lilies do well at the foot of a north sloping wooded bank, if the soil is black much and vegetable matter, mixed with fine sand, a foot deep, with a clay loam subsoil. If there is enough spring water in this soil to keep it moist the lilies will do well. The spring water being warmer than the air passing through the soil prevents its freezing. Besides, the soil is not raised up and down by the action of the frost as is the case with other soils. This prevents the bulbs from being broken and destroyed.

The following will be found to give the best results: Lilium candidum, Japan lily, or St. Joseph's lily, four to six feet high, flowers white, July; Lilium speciosum, L. speciosum rubrum, and variety album, grow two to three feet, and bloom in August; Lilium auratum, or Golden-rayed Lily of Japan, is often seen in yards near the Falls. It is the queen of all the liliums, but like the others does not last more than two years. Lilium Hansoni, Hanson's, will outlive any that I know in this section, leaves in whorls, flowers yellow and spotted.

flowers average about ten in number. Lilium Isabellinum and candidum are the commonest grown here. Isabellinum grows to five feet, flowers yellow with a reddish tinge, eight to twelve flowers, is one of the best. Bloom comes in July.

KNIPHOFIA—RED HOT POKER.

These are known by several names. Seven varieties grow in the park and all are good and worth cultivating. As cut flowers, with bright colors for autumn, there is no flower in the border can equal them. They grow two to five feet high and are perfectly hardy if treated as recommended for the liliums, all but the situation, which should be an open sunny place. Many of them die because the water is in the clasping sheathlike leaves around the crown, freezing there and rotting the crown. Late in the fall all the leaves should be twisted into a knot around the crown, and on this knot should be placed a piece of board or stone to shed the water. The whole should be covered with leaves or soil so as to appear like a hill of potatoes. Varieties Grandiflora and Pfitzerii are the best. A fine specimen of the latter is shown in the accompanying illustration. Names commonly applied to the plant are Tritoma, Flame Flower and Torch Lily.

Kniphofia—Flame Flower

LATHYRUS—EVERLASTING PEA.

It is only where the lathyrus has been allowed its freedom for several years, and upon damp rich soil, where it can continue growing and be allowed to ramble over some branches at will, that its beauty and value can be appreciated. There is no better flower grown for cutting purposes. There are two varietes that should be found in every collection of perennials—Lathyrus latifolius and Lathyrus latifolius alba. The one is bright red and the other pure white. They grow six to eight feet high.

OTHERS WHICH ARE GOOD.

There are numerous other common plants which can be grown without trouble and which are very beautiful. Of these only brief mention can be made. Centaurea Montana produces five or six different shades of color. Bloom comes in July and August, and if the old stems are taken off flowering continues until late fall. Henchera sanguinea, or alum root, is fine in July. Gypsophila paniculata or chalk plant, Thalictrum adiantifolium or Maidenhair Meadow rue, and Lythrum salicarium or Loose Strife, a native of Ontario, should be in every perennial border.

Phlox, Helianthus or Sunflower, Helenium or Sneezewort, Pyrethrum or Feverfew, Anemone or Wind Flower, Aquilegia or Columbine, Coreopsis, Caliopsis or Tickseed, Delphinium or Larkspur, Gaillardia or Blanket Flower, and many others are worthy of mention.

However, the lover of flowers can select from the specimens mentioned, and by getting a few seeds of new ones recommended in catalogues a collection suitable for a border in any garden will soon be found.

THE BEST STORAGE FOR ROOTS

AS severe weather approaches the vegetable grower must attend to the harvesting and storing of his root crops. Light frosts do not damage them much, especially if there is a covering of heavy foliage, but if sufficient frost comes to freeze the ground there is danger of injuring the keeping qualities. Parsnips will stand more frost than beets or carrots. The harvesting of these crops entails considerable work. Different means can be adopted to lessen this labor. Special care must be taken not to injure the crown of the beet. The best plan is to twist the tops off. If a knife is used many of the roots are liable to be cut and rot soon sets in. With carrots and parsnips it matters little whether the roots are cut or not as far as affecting the keeping quality is concerned. When labor is scarce many growers take the tops off with a sharp hoe and then plow out the roots. A better plan is to plow along the row as closely as possible and then pull the roots and cut the tops off with a large knife.

Most growers leave part of the parsnip crop in the ground over winter. The objection to this method is that they cannot be dug before the frost is out in spring and by that time there is a meagre demand.

Where large quantities are grown the storing is usually done in pits. They must be kept cool. If put in a cellar where the air is dry the roots wilt and become corky unless they are covered with earth or sand. Most growers recommend leaving them outside in pits with scanty covering until severe weather sets in. A temperature near the freezing point suits best.

"I generally leave about one-third of my parsnips in the ground over winter," said Mr. Wm. Naismith, Falkenburg, to The Horticulturist. "These can be dug in the spring as soon as they begin to sprout. I put them in a pit and put enough earth over them to keep them dark. If the light gets at them they turn yellow and become of poor quality.

"Frost will not hurt parsnips, and as there is not room enough in the cellar I leave them outside in pits. Only a light covering of earth is necessary. I leave an opening at each end of the pit to carry off the moisture due to evaporation. They keep well in cellars if covered with sand. A good plan is to barrel them in sand.

"Carrots and beets will stand considerable frost when in the ground, but none after they are pulled. Cellar storage, the same as for parsnips, suits them."

"I store beets, carrots and parsnips in an ordinary cellar," remarked Mr. Chas. Plunkett, Woodbridge. "The addition of a little sand around them keeps them as fresh as if they were in the ground."

STORING THE CABBAGE CROP

MARKET gardeners near towns and cities generally find cabbages a profitable crop. There is always a good sale during the summer for the earlier varieties and in late fall for later varieties, but the large growers have to winter over considerable quantities in order to have a supply for filling orders during the winter months. Every grower should aim at getting rid of the more mature heads or those which are nearly ready to burst, in the fall, as they do not keep as well as those which are less mature.

Many experienced gardeners claim that a few degrees of frost does not injure the keeping quality of cabbage, but it does them no good, and severe freezing is very injurious. Most growers aim to have them stored before frost comes. If stored when in good condition good keeping varieties can be held over until spring.

Many methods of storage have been test-

ed. The prime requisite is that they be kept cold and moist. Warmth and dampness are sure to cause rot in a short time. Frost does little damage provided they are allowed to thaw out before being disturbed. The general method adopted by large growers is to put them in trenches and cover them with eight or 10 inches of soil and sufficient mulch to prevent hard freezing. Others recommend putting them directly into a cool cellar and storing in bins three or four feet wide so that a free circulation of air is allowed. For small growers who wish to keep a few over winter for home use the best plan is to bury the head in sand or to heel in the roots. In every case all the loose outside leaves should be removed before storing.

"If planted late," said Mr. Guthrie, of Wright avenue, Toronto, to The Horticulturist, "the St. Dennis is a good keeper. When planted early 50 per cent. of them crack. Quintal is one of the best keepers. The Drumhead Savoy also gives good satisfaction. As a rule I do not pull late varieties of cabbage before November 15. They should be pulled and left roots upward for a week or so to allow all the water to drain out. If water remains in the head rot soon develops.

"I store them root and all because they keep much better. They require too much room in a cellar, so I put what is not sold before winter into long pits. Large ones can be laid two deep, while smaller ones will keep well if three layers are placed. They are put on the surface and furrows turned in with just enough space between to allow the cabbages to be placed roots together and heads outward.

"Then they are covered with clay. The less soil is put over them the better as long as they are covered. I want them to be frozen as hard as frost will freeze them, but alternate freezing and thawing would spoil them. An air hole is left at each end so that there is no danger of their heating.

"In the fall I always store some in the cellar for present use. When more are needed a pit is opened and enough are brought in to fill sales for two or three weeks."

"I have a special frost-proof cellar for celery and cabbage," said Mr. J. E. Terrill, of Picton, to a member of The Horticulturist staff who visited his place recently. "The cabbage are pulled about the first week in November and the roots cut off. Then they are piled in this storehouse in pyramidal heaps, bottom side up, so that the water drains out. If they are put in when wet, rot sets in. They do not rot so quickly with the roots cut off and piled this way as they do with roots on. I can have nice solid cabbage up to May 1 easily."

The method practised by Mr. Jas. Gibbard, of Doncaster, is to plow two furrows toward each other, leaving space enough for piling two rows of cabbages with the roots together. "When one layer is put in," said Mr. Gibbard, "I cover it with earth. Then another tier of cabbage is put on and again a thin layer of earth is added. Cabbage are then put along the centre to round the pit up nicely, and the whole is covered with eight or 10 inches of earth. In case heavy frost comes without any snow it is well to cover with long manure. If the deep covering is not added until hard frost comes there is no need of air holes.

"Some growers claim that heavy frost does not hurt cabbage, but I find that those on top are always the first to go, and in the winter of 1903 I lost many, so I have decided that hard freezing damages them."

I prefer using compost as a fertilizer in the fall on my garden, and then there is no need for spring plowing.—(Geo. Benner, Burlington, Ont.

VEGETABLES AT THE EXHIBITION

THE display of vegetables at the Canadian National Exhibition was not as large as the extent to which truck gardening is carried on in Ontario would warrant. Whether this is on account of poor treatment at the hands of the exhibition management or because of poor crops this season could not be definitely learned from the gardeners. A general lack of interest seems to be the real cause. One exhibitor claimed that some valuable prizes had been withdrawn from the vegetable prize list, while another explained that fourth prizes had been added in several sections to make up for this withdrawal. To say the least, the competition was not as keen nor were the entries as numerous as they should be. The prize winners could almost be counted on the fingers of one's hands.

Growers from Humber Bay carried off many prizes. In beets the awards went to J. B. Guthrey, Dixie, and W. Harris and J. Dandridge, Humber Bay. The prizes for the different varieties of cabbage were divided among R. J. Taylor, Brantford; W. Harris, Brown Bros., and J. Dandridge, Humber Bay, and J. B. Guthrie, Dixie, while Harris and Brown Bros. carried off first and second for best collection of cabbages.

The display of onions was very good. The prizes went to Harris, Brown Bros., Guthrey, Dandridge, Taylor and F. W. Krause, Guelph. The prize parsnips were owned by Chas. Plunkett, Woodbridge; Wm. Naismith, Falkenburg, and Taylor. A fine collection of peppers owned by R. J. Taylor deserves special mention. S. D. Furminger, Guthrey and Harris shared the prizes with Taylor for peppers. W. Harris won first and Guthrey second for collection of table squash.

WINNERS FROM MUSKOKA.

The vegetable-growing qualities of Muskoka soil were shown by the fine specimens shown by Mr. Wm. Naismith, of Falkenburg. His fine collection of potatoes won first place this year for the fourteenth time in succession. This year he carried off every first but one in potatoes. When Mr. Naismith gets a new variety of good quality he does not hide it in one corner of his cellar for fear some other grower might get some for seed. He brings the best of them to the Toronto exhibition, so that others may see what can be grown, and sells all he has to spare.

The prize for collection of garden herbs went to Chas. Scott, of Melville Cross. For collection of vegetables W. Harris won first, J. B. Guthrey second and Broadview Boys' Institute, Toronto, third.

EXPERIMENTS IN GROWING POTATOES

THE effect of certain arsenites on potato foliage is dealt with in Bulletin 267 of the New York Experiment Station. Experiments were carried on with Paris green and arsenite of lime. The former was applied four times by the three common methods: with water, with lime water, and with Bordeaux mixture. Rows were left unsprayed for checks. As high as four and a half pounds per acre were used without injury.

The experiment showed that Paris green has a fungicidal value at least one-third as great as Bordeaux. Rows treated with Paris green and water yielded 46 bushels per acre more than untreated rows, while those on which Paris green and Bordeaux were applied gave a slightly higher yield than those on which Bordeaux alone was used. It was further shown that arsenite of soda may be much more safely used with Bordeaux than with lime water, and the conclusion was that it should only be ap-

plied with Bordeaux mixture. The Paris green, if applied in moderate quantity and evenly distributed, is not injurious to foliage when used with lime water or Bordeaux mixture. Rows treated with Bordeaux alone out-yielded those treated with arsenite of soda in Bordeaux by 34 bushels per acre. This suggests that, perhaps, the soda arsenite may do damage to the crop though not showing any effect on the foliage. The use of arsenite of soda and lime is attended by considerable risk. The part which copper sulphate and lime plays in spray mixtures is plainly given. Those interested in spraying should write for this bulletin.

QUALITY TESTS.

"Quality in Potatoes" is discussed in Bulletin 230, Cornell University. It is pointed out that the quality depends on the amount of water, the amount of starch, and the richness of the potato in nitrogenous matter. After careful investigation it was considered that the quality and mealiness of a potato when boiled depended on the daily range of soil and atmospheric temperature during the growing period, on the degree of ripeness of the tuber when the plant dies, and on the physical condition and type of the soil. Since tubers grow at regular nodes on the stem above the planted tuber it is recommended that planting be five or six inches deep in good soil so that enough nodes may be formed to accommodate the tubers which the plant is capable of bearing. If planted deeper than six inches moisture and temperature conditions are unsuitable for tuber development at the lower nodes and the result is small and scabby potatoes. If planted shallower than three inches the variation in temperature and moisture is too great for proper development. The result is small, compound and sunburnt potatoes. Long tubers which grow sloping in the ground show a difference in quality in the different halves. The desirable conditions, 65 to 75 degrees temperature and uniform moisture, are most nearly approached at a depth of two to six inches, and it is there that the best tubers are found.

WINTERING THE CUCERBITS

SPECIAL care in handling is necessary if the gardener wishes to have success when storing squashes, pumpkins, melons and such crops. Little handling should be given before the skin has become thoroughly hardened. They are injured by very slight frost, although the injury may not be apparent for some time. Those who have had experience in harvesting and storing these crops recommend that they be pulled before frost comes and put in piles in the field. There they can be left exposed to the sun by day, but should be covered at night to prevent injury from frost. In case a stem is broken off rot soon develops. For this reason it is recommended that the stems be cut off to not more than one inch long when harvesting so that they cannot be used as handles when loading them on wagons. When hauling them to the storehouse they should be placed on a bed of hay or straw to prevent bruising.

The best storage is dry atmosphere and cool temperature, although they keep for a considerable time if the temperature is comparatively high. Authorities recommend placing them on shelves one tier deep.

"I always aim to have the squash harvested before frost comes," said Mr. T. W. Stephens, of Aurora, to The Horticulturist recently. "They should be off the vines in early October to escape early frosts. They must be kept dry and cool, but never frozen. I always put them in a dry shed

or feed room where there is no dampness. They keep much better in a dry room free from frost than in a cellar. If put in the cellar in early fall the heat and moisture causes them to rot in a short time. By keeping them in a dry room just above the freezing point I have had them until May 24. Citrons and watermelons can be kept the same way, but the latter will not keep longer than Christmas."

Tomatoes Until Christmas

"I CAN have ripe tomatoes for use until near Christmas," said Mr. Jas. Gibbard, of Doncaster, to a member of The Horticulturist staff who visited his place a short time ago. "Just before frost comes the green ones are picked and stored in a cool dry place. Where there is a dampness they soon rot, and if there is much heat they ripen quickly.

"I have taken fresh tomatoes to England in that way. When I reached the Old Country they were not quite ripe. If they get any frost before being put away they will not keep."

Marketing Tomatoes

"THERE is good money in growing early tomatoes for the local market," said Mr. Wm. Waller, of Bartonville, to The Horticulturist recently, "but we cannot get rid of all our crop in that way. A local commission buyer takes great quantities, and although more might be obtained on the Hamilton market for a few at a time it pays to sell to him.

"Selling to the canning factory, also, is not so profitable for the same quality of tomatoes. The commission buyer wants good quality and pays a good average price."

The Asparagus Bed

ALTHOUGH asparagus is a wholesome and most profitable garden vegetable it is not widely grown. It is perfectly hardy and comes in early in the spring when there are few garden crops fit for use.

Speaking to a representative of The Canadian Horticulturist who visited his place at Picton recently, Mr. J. E. Terrill said: "I have about four acres of asparagus. I take a good harvest from early in the spring until about July. Then I cease cutting and harrow the beds well. This destroys most of the weeds. The patch is left throughout the summer and in the fall before it ripens the whole is cut off level with the ground. A thorough cultivation is then given with the Acme harrow and a light coat of well rotted manure added.

"The bed is left in this condition over winter. In the spring as soon as warm weather renders the ground fit for cultivation the Acme harrow is again used to partially mix the manure with the soil. In a very short time the crop is fit for cutting. I prefer to cut when about six inches above the ground, as underground stems are liable to be tough."

"After we stop cutting the crop," said Mr. W. A. Best, gardener for Earl Spencer, Picton, "the asparagus bed is let run until October. Then all the old stems are cut off and burned. After that a disc harrow or some such implement is run over the patch and a heavy coat of rotten manure applied. In the spring it is disced both ways to work the manure into the soil."

Tomatoes can be had for slicing up to April or later by taking solid specimens from the vines, being careful not to detach the calyx from the tomato, and preserving them in a solution made of five quarts of water to one of vinegar.—(W. H. Armstrong, Cornwall, Ont.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE HAMILTON SHOW.

The Hamilton Horticultural Exhibition, for a first effort, was a success, but it can be greatly improved another year. In spite of the best efforts of those in charge, the fact remains that the bulk of the fruit and vegetable growers of the Niagara district did not realize that the show was established for their benefit and that they were expected to take a prominent part in its management. Should the Ontario Department of Agriculture decide to continue the show another year a committee which will represent all the horticultural interests of the Niagara district ought to be selected to have charge of it.

This committee should start work early in the season and should be composed of one or more representatives of each of the horticultural societies, of the Ontario, Niagara district and Burlington fruit growers' associations, of each of the several vegetable growers' associations, and possibly one or two members of the Hamilton City Council. Much of the success of the Canadian National Exhibition has been due to the work of the members of the Toronto City Council. Sub-committees could be appointed for fruit, for flowers, and for vegetables, and to these committees would have to be left largely the making of all arrangements connected with these departments of the exhibition.

It would be well, for convenience of management, to have the president and secretary located in Hamilton. For these positions it would be difficult to secure two better men than Mr. McCulloch and Mr. Dickson, the president and secretary of this year's exhibition, as the success of this year's show was due in a large measure to their faithful, efficient work. Small local committees could have charge of the details of management. If this exhibition is to fulfil the objects for which it was started the best men the Niagara district can produce should be on the committee of management.

THE DOMINION CONFERENCE.

The conference of fruit growers from the different provinces of Canada, which the Dominion Department of Agriculture is arranging to hold next winter, will be the most important gathering of fruit growers ever held in Canada. Such a meeting has long been needed. Each province has difficulties of its own which its growers will have to grapple with by themselves, but there are larger questions which affect all the provinces, and their proper consideration can only be secured through a conference of growers from each province.

One of the most important subjects that can be dealt with is the advisability of forming a permanent body, representative of the fruit growers in the different provinces, which could meet annually or at least once every two years. Such a body, owing to the expense of attending its meetings, would have to be small. It might be constituted of the presidents of each of the provincial associations, and could meet in turn in the different provinces at the time of the holding of their provincial convention, but separately.

The associations could hardly use a portion of their funds to better advantage than in sending delegates to such meetings. In this way it would be possible for fruit growers to have a direct say in all matters of Dominion legislation relating to their interests. The honor of representing a provincial association at one of these conferences would be highly prized and would add to the interest taken in the work of the provincial organizations. A determined effort on the part of fruit growers will easily result in the formation of such a body.

The advance of the times is forcing vegetable growers, as well as growers in other lines of work, to devote more attention to improving their methods. Varieties of vegetables and practices which proved profitable a few years ago are no longer so, and the growers who realize this first and are the quickest to grasp the demands of the situation will reap the largest returns. The recently formed vegetable growers' association has already done much to

awaken an increased interest in matters of this kind. Greater advances will be made during the next five years than have been during the past ten. Is it not strange that with all the fruit, flower, bee, poultry and other publications there is none devoted exclusively to the growing of vegetables ?

Most of the provincial fruit growers' associations in Canada have committees at work preparing the programs for their annual conventions which will be held during November, December and January. Care should be taken to see that time is allowed for a discussion of the best method of bringing pressure to bear on the Minister of Agriculture to see that the chief of the Dominion fruit division, instead of being under the control of the dairy commissioner, is given full control of his department. The fruit interests of the Dominion are of sufficient importance to require a commissioner who shall be independent of the heads of any of the other branches of the government service.

Evidence of the value of The Canadian Horticulturist as an advertising medium continues to accumulate. The latest one of our readers to win one of the prizes offered to readers who purchase from advertisers is Mr. R. H. Ellis, of Leamington, who bought goods to the value of $270 from Pilkington Bros., of Toronto, and $8.80 worth from the Foster Pottery Co., of Hamilton, through seeing their advertisements in The Canadian Horticulturist.

There are few of our readers who have not a few friends who would not profit were they to subscribe for The Horticulturist. This they would do were the good points of the paper properly drawn to their attention. If our readers will help us gain a few subscribers it will enable us to improve the paper and everyone will benefit. Won't you do your part by getting us at least one new subscriber for the balance of this year and all of next year for only one dollar ?

Boxes Not Profitable Packages

W. R. DAVIS, OAKVILLE, ONT.

I find it is not as profitable as I could wish to pack apples in boxes, except for really good stock. Last year I put all firsts in boxes, and seconds in barrels. The returns showed that the firsts, except Blenheim Orange, did not bring a high enough price to warrant my doing so this year, considering the extra price of boxes and trouble of packing. Baldwins seemed to sell better than Spys in boxes.

I did not have, as a rule, very much trouble securing boxes. Last year I got them from Burlington. They were 9 x 12 x 18, and ran four to the barrel, but I would rather use the larger box, that runs three to the barrel, which is the size adopted by the Fruit Growers' Association.

FRUIT GROWERS
VEGETABLE GROWERS
AND
AMATEUR FLORISTS

you and your friends should be regular readers of

THE CANADIAN HORTICULTURIST

It is the only paper in the Dominion that will keep you fully posted on fruit, vegetable and floral matters. Sample copies sent on request.

We want to have 8,000 paid subscribers by the first of next year.

Our Subscription Offers

If you will induce one friend to take The Horticulturist for one year, and send us a dollar for his subscription, we will extend your subscription for six months.

If you send us two new subscriptions, we will extend your subscription for one year.

Trial subscriptions, from October until the first of next year, will be accepted for 10 cents. For every three trial subscriptions you send us, we will extend your subscription for one month.

New subscriptions, from October until January, 1907, or 14 months, will be accepted for $1.

Those of our readers who are taking The Horticulturist through horticultural societies or fruit growers' associations will be allowed to retain a a liberal commission on all new subscriptions or we will arrange with the secretary of their society to extend their next year's membership.

Free sample papers will be sent to any one who applies for them.

WONT YOU HELP US TO REACH THE 8,000 MARK?

The Canadian Horticulturist
TORONTO, ONT.

THE ONTARIO HORTICULTURAL EXHIBITION

Arrangements are rapidly being completed for the Ontario Horticultural Exhibition, which will be held in Massey Hall, Toronto, November 14-10. The Governor-General has been invited to open the exhibition on Tuesday afternoon, November 14.

A committee representing the various organizations interested in the exhibition visited Massey Hall recently to arrange for the allotment of space. It is intended to have striking exhibits of flowers, fruits, vegetables and honey both upstairs and down, so that people who visit the hall will be pleased with the general effect of the exhibition. All commercial exhibits will be shown in the basement of the hall, where the demonstrations in fruit packing, etc., will be given. The prize lists this year have been considerably increased, and owing to the advertisement the exhibition received last year, it is expected there will be an increase in the number of exhibits this season.

At a meeting of the committee of management held during September it was decided to sell three coupon tickets for 50 cents, to place the general price of admission at 25 cents, and to have a special children's day on Saturday, when children will be admitted for 10 cents, or three for 25 cents. Members of the Ontario Fruit Growers' Association, the Ontario Vegetable Growers' Association, and of the other bodies interested in the exhibition will be sold 50 cent tickets which will admit them to the exhibition at all times during the week.

An effort is being made to secure the use of a large building immediately adjoining the hall, in which it will be possible to hold the convention of the Fruit, Vegetable and Bee Keepers' Associations simultaneously. Committees are at work preparing programs for these conventions. It is intended to secure noted authorities as speakers. This will be the first annual convention of the Ontario Vegetable Growers' Association, and a great deal of interest is being taken in it on that account.

THE WORK OF THE HORTICULTURAL SOCIETIES

During September horticultural societies in the different cities and towns of Ontario demonstrated that their labors have not been in vain. Flower shows were held by many societies, while several also had a concert in the evening at which music and practical addresses made up the program.

DESERONTO'S FINE EFFORT.

The show of the Deseronto society was most successful both as regards the quantity and quality of the exhibits, especially when it is considered that not a dollar of the funds of the society is paid out in cash prizes. The strongest evidence of the good work that is being done is the large number of lawns and gardens which are kept in first-class condition among the working classes. Many of the back yards and gardens would do credit to the professional gardeners. The judge was Mr. E. F. Collins, of the Allan Gardens, Toronto, who writes to The Horticulturist as follows: "Some of the exhibits would put to shame many I have seen at much larger places. Special mention may be made of the Rex begonias and Tuberous begonias, which were very fine for the amateur classes."

KINCARDINE FLOWER SHOW.

The annual show of the Kincardine society was held August 30, and at the special request of some influential citizens the president and secretary kept it open the following evening. Costly plants of rare excellence and beauty, as well as many equally fine though less valuable, filled the side tables. The center tables were filled with cut flowers tastefully arranged on the tables by some of the ladies of the society. To say that the display was grand conveys but slightly the striking effect of a large hall filled with healthy and vigorous plants and gorgeous bouquets of the choicest flowers, all grown by amateurs. This shows that the seven years' life of the society has cultivated the tastes of the citizens. It has also been the means of beautifying many gardens and homes belonging to members and their friends. The premium list of the past year consisted of 14 collections, made up of fruits and flowers. Each member on paying one dollar is entitled to one of the premiums free, and besides we make a present of a year's subscription to The Canadian Horticulturist, a dollar magazine. It is the neatest, cleanest and most instructive magazine on the subject that I know of, and ought to be found on every center table. Every year adds new flowers, shrubs and trees to our list. Many of the progressive farmers and fruit growers are becoming members, as the cost is little and the gain great.—(Joseph Barker, Sec'y.

A SUCCESS AT CARDINAL.

The Cardinal society held its annual exhibition September 6 and 7, afternoon and evening. Notwithstanding the fact that several of the old officers and active workers of the society have left the organization during the past year, and the idea that the exhibit this year would be a failure, our exhibition, though late in the season, was the best in quality and selection of house plants and cut flowers that the society has put before our villagers. That our flower show is popular and becoming more so was evidenced by the hall being crowded both evenings. —(E. E. Gilbert, Sec'y.

GRATIFYING RESULTS AT CAYUGA.

The Cayuga society has completed its work this season with gratifying results. Increased interest has been awakened. The public gardens at the Court House Park, the high and public schools, and many private gardens are more beautiful than ever. Our country school director, Principal Neale, is making a show place of the Decewsville public school grounds. Our distribution to members included 1,000 Norway spruce trees, 480 geraniums, 480 coleus, and several hundred gladioli. The well defined plan

of this society that a horticultural society should be a factor in the public improvement of its neighborhood has been followed closely again this season with good progress. I cannot too highly praise our officers in their zealous and unpaid efforts, and the courtesy of our official florist, L. H. Weaver, of Dunnville, and the energy of our secretary, F. G. Lishman.—(A. K. Goodman, Treas.

THE FOURTEENTH SHOW AT GALT.

The Galt society held it fourteenth annual exhibit on August 30 and 31. There was a good exhibit in all classes, the specimen ferns and coleuses being especially fine. The cut flowers were also of a high quality and comprehensive in character. The show was not patronized as well as it deserved to be. W. Hunt, of the O. A. C., Guelph, was the judge of pot plants, and A. H. Ewing, of Woodstock, awarded the prizes for cut flowers. H. S. Peart, of the O. A. C., judged the fruit and vegetables.

NEEDLEWORK AT PRESTON.

The Preston society held a successful show in the skating rink on September 6 and 7. The exhibits were of a high order and competition in many classes very close. An exhibit of ladies' needle and fancy work gave an added interest to the exhibit. The attendance was good. W. Hunt, of the O. A. C., Guelph, judged the plants and flowers, and E. Lane, of Galt, awarded the prizes for the fruit and vegetable display.

SCHOOL CHILDREN SHOW AT SIMCOE.

In the spring the Simcoe society distributed seeds among the children of the public schools, with the understanding that a big flower show would be held in the fall. The show was held in the drill shed September 7 and the success of the scheme can be judged from the fact that there was almost four times as many entries as in 1904. The display on the tables was grand, and the competition was so close that it is thought more than three prizes should have been awarded. Judge Robb and Mr. W. S. Tisdale awarded the prizes. Many vegetables were on exhibition. In the evening band music and appropriate recitations added to the enjoyment of the visitors.—(Henry Johnson.

EXCELLENT SHOW AT BRANTFORD.

The executive of the Brantford society were well pleased with the results of their distribution of about 6,000 packages of seeds to the school children. The exhibition of flowers held on September 15 was a huge success. The secretary recorded about 600 entries of asters, verbenas, phlox drummondi, scabiosa and salpiglossis, besides about 50 entries of baskets of cut flowers. In all about 130 prizes were awarded. The premiums given consisted of fine specimen plants of palms, ferns, dracenas, araucarias and bulbs. The evening meeting was presided over by Mr. Dempster, president of the society. In a very interesting address Mr. Wm. Hunt, of the O. A. C., Guelph, commended the action of the Brantford City Council in granting the society the sum of $100 as being one of the best outlays the city had ever made. Those present heartily endorsed the outlay by loud applause. Directions for the care and culture of the plants awarded as premiums were given by the speaker in his address, as well as a practical demonstration on the potting of bulbs and their after culture and care.

ELMIRA'S SECOND ATTEMPT.

The directors of the Elmira society are to be congratulated on the success of their second flower show, which was held August 24. A large number of fine specimens of the floral kingdom were on exhibit. The children's exhibit of asters grown from seed given to them by the society was particularly fine. The admission receipts show that over 2,000 people, besides the children, visited the show.

KEEN COMPETITION AT BELLEVILLE.

Last spring the Belleville society distributed flower seeds among the children of the different classes in every school in the city. In September the scholars from the high, public and separate schools were in their glory displaying the flowers. The total number of entries was about 300. Each school had its display upon one of the large tables which are in the building, and it was rather difficult to tell which school had the best exhibit. In the afternoon the building was open to the public and many of the parents and others visited the show, all being apparently much pleased.

FEWER ENTRIES AT STRATFORD.

The City Hall was the centre of attraction for a large number of citizens on the evening of September 6 at the opening of the Stratford society's annual show. Flags and bunting along with the numerous tables of beautiful plants and flowers made the hall a pleasant place to spend the evening. There was a noticeable falling off in quantity but no deterioration in quality. The flower and plant department was very attractive. Among the flowers were some very fine sweet peas, single petunias and asters, while several superb specimens of the rubber plant and begonia were highly admired. The judging of flowers and plants was done by Mr. Wm. Gammage, of London. In pot plants Messrs. Wm. Sanderson and S. B. Webb carried off most of the prizes.

The vegetables were somewhat of a disappointment, the display being quite small. The fruits occupied one table. Apples were a fine sample, but inferior to last year's.

Report Your Meetings

Officers of horticultural societies are earnestly urged to send notes regarding the doings of their societies to the society editor for publication in each issue. Programs of meetings held, copies of addresses read, and subjects discussed are all interesting to our readers. Let us have all you can. The more the better. Contributions can be received up to the 22nd of each month.

VEGETABLE GROWERS ORGANIZING

The Ontario Vegetable Growers' Association has set to work in earnest to organize branch associations throughout the province. A special effort is being put forth to have thorough organization through local associations in the different vegetable centres before the Horticultural Exhibition in November. During August Mr. Andrew McMeans, of Brantford, made a tour of western Ontario for the purpose of forming local associations and met with varied success. As a result of his trip Mr. McMeans hopes to have several flourishing associations at different points. Growers around Leamington were enthusiastic and a strong association was formed with J. S. Fraser as president; J. L. Hilborn, vice-president, and E. E. Adams, secretary-treasurer. It was decided that the best means of getting the different members in line would be to hold meetings at their respective homes.

Flourishing organizations are promised for several other centres. At Woodstock Messrs. Doyle and Gabriel Elliot were well pleased with the move and have promised to do what they can. The good work at Chatham was left in the hands of such enthusiasts as Messrs. Ross, Collins, Clarke, Findlay and Everetts.

The growers in the Windsor district are chiefly French Canadians and know merely enough English to make sales. However, at Cabbage Point, a few miles from Amherstburg, Mr. Hilare Gignac was sure that an association could be formed and 150 members secured before fall. Messrs. Wigle, of Ruthven, and Coatsworth, of Kingsville, can also be counted on for support.

There is a general feeling among the growers that their crop should be protected by a duty at least equal to that imposed on similar Canadian products going south.

FRUIT CROP CONDITIONS

Reports received by The Horticulturist during September from the leading fruit sections of Ontario tend to verify the report published last month that the apple crop of the province this year will be light and prices high as compared with last year. In many sections the crops have been sold and the growers regret they did not hold out for better prices. The United States and British crops are, also, behind the average, and a keen demand from the Old Country is expected.

Grapes and plums will be larger crops than last year. The quality generally is reported to be good. The following are some of the reports that have been received:

ESSEX COUNTY.

The apple crop is not more than 40 or 50 per cent. of last year's. The greater part is already disposed of. Some of the best orchards sold for a lump sum on the trees. Other buyers are giving $1 per barrel and do their own picking. There does not appear to be any regularity in prices given as the quality is not uniform.—(W. W. Hilborn, Leamington.

KENT COUNTY.

Our crop of apples this season promises to be very fine, especially where thoroughly sprayed. In quantity it will be about half of last year's crop. Sales so far are very satisfactory, and we are looking forward to a very successful season.—(W. D. A. Ross, Chatham.

WENTWORTH COUNTY.

Japan plums and Lombards are a heavy crop, while other varieties are only about one-third. Fancy lots sold at 30 to 40 cents. Japan varieties and Lombards brought 10 to 25 cents. About 50 per cent. of the Lombards are rotting. Grapes are not more than half a crop, but clean and ripening early. Some Concords and Niagaras have sold at 15 or 16 cents per nine pound basket. There is only a light crop of apples, probably 25 per cent. full crop. Winds and codling moth are playing havoc and not more than one-half of the crop will be packed as No. 1 or No. 2, and there is every likelihood that a No. 3 grade will find a market. As high as $1.50 per barrel has been obtained for No. 1 and No. 2 on the trees.—(Joseph Tweddle, Fruitland.

The grape crop is in every way better than last year, very clean of rot and quality never better. Plums are heavier than last year and prices much lower. The apple crop is very light, quality fair, prices ruling high, about $1.50 per barrel on the trees, purchaser furnishing labor, barrels, etc. Some have done better than this.—(E. M. Smith, Winona.

THE ST. CATHARINES DISTRICT.

Apple prospects have not improved. Some isolated orchards have nice crops, but majority of orchards have very little fruit. Plum crop has been disappointing. Market was oversupplied with Japan varieties, and it has not been possible to secure ready sale for the later kinds at satisfactory prices. Many kinds have not been harvested in full on account of low price and poor demand. Grape crop promises to be of excellent quality and fair proportions. If weather remains warm a good demand is expected at reasonable prices. Growers are marketing heavily.—(W. H. Bunting, St. Catharines.

BURLINGTON DISTRICT.

Apples are one-half of last year's crop. Prices range from $1.50 to $2.55 per barrel for No. 1 and No. 2 stock, grower to pick and deliver at the station. Grapes are 100 per cent. better crop and prices hun two to four cents per pound gross. Plums are double the crop, with the price 17½ to 25 cents per 11-quart basket at station.—(A. W. Peart, Burlington.

GEORGIAN BAY SECTION.

The apple crop in the Georgian Bay district from Collingwood to Owen Sound and in the Beaver Valley, is exceedingly light, not more than 10 per cent of a full crop. There are, however, some very good apples, especially Russets. The winds of the last few days have very much reduced them. In the Simcoe dis-

trict the crop is better, but the orchards are generally small. It is nearly all bought by one man. He has said there will be about 7,000 barrels. The price paid is 75 cents to $1.45 per barrel.—(J. G. Mitchell, Clarksburg.

SOUTH ONTARIO.

The apple crop in the southern part of Ontario county will be heavier than last year. The crop along the lake is light, but further north is exceedingly good. The apples are clean and of good size, but there is quite a lot of wormy fruit. Apples have been bought at all prices up to $1.60 per barrel for everything on the trees in one good orchard. Almost all the apples are sold.—(Elmer Lick, Oshawa.

NORTHERLY SECTIONS.

Apples are as large a crop as last year, but the fruit is much larger and finer. Not so many codling grubs in the fruit apparently even where not sprayed, and that is generally. I do not hear of any sales being made so far, and I have inquired a good deal.—(Stanley Spillett, Nantyr.

The apple crop this year in Grenville county will be easily double that of last year, chiefly Fameuse. I should judge that two-thirds of the crop has been sold on the basis of $1 on the tree for No. 1 and No. 2. Many orchards will grade low, as the spot spread rapidly in August in orchards that were not sprayed.—(Harold Jones, Maitland.

THE DOMINION FRUIT GROWERS' CONFERENCE

Arrangements are being made by Mr. A. McNeill, chief of the fruit division, for the conference of fruit growers from the different provinces of Canada which will be held in Ottawa next winter. An outline of the subjects that will probably be discussed has been prepared and it has been suggested that the various provincial associations had better consider these matters at their annual conventions so that the delegates they send to Ottawa may be prepared to debate them.

The suggested subjects to be discussed at the proposed conference are :

1. The preparation of statistics and fruit crop reports, including acreage of small fruits by counties ; number of fruit trees by counties ; estimation of value and quantity of fruit crop ; preferred varieties; bi-monthly or monthly reports of fruit crop conditions, including the weather, insects, fungous diseases and market quotations.

2. Transportation by rail. Rates ; classification ; discrimination in rates between individuals and firms, between long and short hauls, between places or territories, between commodities ; station accommodations ; speed of service and delays ; supply of cars (delays in supplying cars) ; facilities for tracing cars en route ; delay in settling claims ; special facilities for fruit shipments, "decking" cars for baskets, ventilated cars, refrigerator and frost-proof cars, heated cars, transportation for attendants in charge ; bills of lading, shipper's count, exemption ; demurrage charges ; competent station employees ; transportation by express.

Transportation by water. Freight rates ; ventilated and refrigerator chambers ; the dock accommodations for loading and unloading ; bills of lading.

3. Packages. Berry boxes ; baskets ; fruit boxes ; barrels ; crates and other packages ; uniformity in minimum, maximum or definite size.

4. Markets and marketing. Agents and commission men, domestic and foreign; direct sales and consignments; cooperation in selling; opening new markets; commercial agents abroad.

5. Adulteration of fruit products. Jams, jellies, canned fruit, fruit extracts.

6. Nurseries. Varieties and novelties ; diseases and pest inspection; responsibility of agents.

7. The Fruit Marks Act. Definition of No. 2.

8. The Dominion experimental farms and provincial experiment stations. On what new lines should the work be prosecuted ?

9. Horticultural education. Fruit conventions and institutes, orchard meetings, school gardens, agricultural college short courses.

10. Orchard practices, including varieties, planting, tillage, fertilizers, winter protection, pruning, thinning, spraying, orchard soil culture, picking, storing.

11. Fall fairs and fruit exhibitions generally. Prize list ; judging and judges, score cards ; displays.

12. The formation of a Canadian Pomological Society or Dominion Horticultural Society.

13. Horticultural publications.

14. Miscellaneous.

Items of Interest

Cases of deceitful packing have been cropping up lately at the Toronto market. In one case it is claimed a lady packer is responsible for the fraud. The apples on top of the package were beautiful specimens of Duchess, but underneath were scrub Greenings. Another similar case was found with a basket of peaches. Both cases were reported to the authorities and investigation is promised.

A freak of the horticultural world was noticed in an orchard near Enderby, B. C., in August. A bunch of freshly opened blossoms were found on the limb of an apple tree with fruit almost ripe on the same limb only a few inches away.

British Columbia fruit growers met the Tariff Commission at Nelson and urged that the duty on fruit be maintained and that the same strictness be kept with regard to inspection. The Winnipeg vendors had hoped to have the duty lowered, but British Columbia growers claim they can supply the whole northwest and have some left to ship to England. They said that duty might be taken off oranges, lemons, and such tropical fruits, but went so far as to advise a stiffening of the duty on apples.

THE FRUIT SHIPMENTS TO THE WEST

The trial shipments of fruit being made by the St. Catharines Cold Storage and Forwarding Co. are not, as some seem to suppose, being assisted by the Ontario government. Shipments made this year receive no aid and are the result of the enterprise and push of the company.

One year ago when the Government sent Prof. Reynolds to the Niagara district to secure two carloads of fruit to be forwarded to Winnipeg, the members and growers of the St. Catharines Cold Storage Co. volunteered to load a car and forward it on commission free of any expense to the Government, while Prof. Reynolds had to guarantee a fixed price for the bulk of the fruit sent in the other car. Owing to the guarantee this car cost the Government over one hundred dollars, while the St. Catharines car was sold at prices satisfactory to most of the shippers.

During the winter and early summer the growers at St. Catharines held several meetings and at last decided to arrange with some of the commission houses in Winnipeg to handle their fruit. A committee of four growers was named to assist the directors of the company to load two cars a week under the direction of the committee.

About 25 growers agreed to pack and ship their share, so that the cars would have enough fruit on the shipping days. Arrangements were made with The Ottawa Fruit Exchange, Winnipeg, to sell the fruit and to send statements to each shipper and also to send a copy of the whole to the storage company. A portion of each car was to be packed and put up in special packages, and the remainder in the regular shipping baskets. The committee has a copy of all details of the fruit and shippers in each car, giving the grade of fruit, ripeness and style of packing and packages used. To this will be attached the copy of sales and condition of car on arrival. Mr. Moore, Chief of Markets Division under the Dominion Government, has been placing thermographs in most of the cars, and the records of the temperatures during the trip will also be attached to the statements.

Good results are looked forward to from these records. At date of information 16 cars have gone forward. Shipments have increased to three cars per week, and two carloads have been sold to go as far west as Calgary, and other sales will follow.

Some of the results have been disappointing and others very satisfactory. The largest shippers appear to be sanguine that the venture will be very successful on the whole and that they will be able to locate the weak points which have caused low prices in some shipments and to some growers.

The railway commission induced the railway companies to give transportation to anyone the growers might choose to accompany a few cars to test the efficiency of the several makes of refrigerator cars. Inspector Carey, of the Fruit Division, was chosen to accompany the first, a G. T. R. refrigerator, on September 8, and Mr. A. D. Broderick accompanied the one sent on September 15. Mr. Broderick goes out solely in the interest of growers, receiving nothing for his expenses or time, but it is felt by the growers that the Ontario Fruit Growers' Association or the Ontario government should bear his expenses.

Later in the season ventilated cars will be tried. The sending to the west of such large quantities of fruit will help to stiffen prices here and prevent gluts and over-shipments to our own markets.

A report from The Ottawa Fruit and Produce Exchange, of Winnipeg, of the car which reached there September 20 states that the fruit was in great demand and sales made as follows: Pears, 12-quart basket 65 cents, trays 95 cents, and boxes $2.30; tomatoes, 40 to 50 cents; peaches, 70 cents; grapes, 30 to 43 cents. The report also says that the cars are arriving in much better condition than they did earlier in the season.

The Canadian Horticulturist is becoming an important publication and must be a great help to fruit growers and lovers of flowers.—(Mr. Thomas Kerfoot, Minesing, Ont.

Congratulations on the greatly improved condition of The Horticulturist. It is very noticeable.—(J. Thos. Murphy, Simcoe, Ont.

BULBS {Tulips, Hyacinths, Crocus, Narcissus, Snowdrops, Lilies, Etc.

HOUSE PLANTS, SHRUBS, PERENNIALS

Now is the time to order. You will find our prices the best. See our catalogue before ordering elsewhere.

THE WEBSTER FLORAL COMPANY, LIMITED

FLORISTS, NURSERYMEN AND SEEDMEN — **HAMILTON, CANADA**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

FRUIT AT THE CANADIAN NATIONAL EXHIBITION

The magnitude of the fruit display at the Toronto exhibition can be judged from the fact that apart from boxes, baskets and barrels over 2,000 plates were required to place the entries on the shelves. The entries were more numerous than in 1904, but that this is an off year in most fruits was shown by the quality and lack of color in most cases. It would be difficult to single out any one fruit that was particularly fine. Plums, perhaps, were the best, but many rotted on the plates. Peaches were plentiful, but noticeably immature. The same lack of development was characteristic of nearly all the fruits.

The surprising feature of the display was the show of pears. Reports from all sections quote that crop as being light to a failure. Despite this fact the entries were up to the average and the specimens good in most instances. The grape shelves were well filled, but very few of them were ripe enough to warrant the placing of the placard "please do not handle."

The reports which have been published in The Horticulturist stating that Ontario's greatest apple crop this season is to be found in eastern Ontario was borne out by the number of prizes awarded to the Dempsey's and other growers near Trenton. Several prizes, however, went to Hamilton growers and a few to St. Catharines. The interest taken in modern packing was evidenced by a greatly increased exhibit of boxes packed for export. In this class, also, the Trenton growers seem to be the most expert. Many prizes were awarded to Harry Dempsey, of Rednerville, both for packages and specimens on the shelves. For the ninth time in succession Mr. Dempsey has won the red ticket for collection of 40 varieties. The second prize for this collection went to Harry Marshall, of Hamilton, who also won numerous prizes for the different individual varieties on plates and first for collection of 20 varieties.

A valuable part of the apple exhibit was the collections of five varieties for export, five for dessert, and five for cooking. In the class for export Harry Marshall got first with Ribston Pippin, Baldwin, Rhode Island Greening, Northern Spy and King of Tompkins County. Frank Onderdonk, of Albury, secured second with King, Spy, Baldwin, Ben Davis and Golden Russet. For dessert apples the first went to Harry Marshall, who had Fameuse, Swazie Pomme Grise, Ribston Pippin, Gravenstein and Spy, while Harry Dempsey came next with Trenton, Ribston, McIntosh Red, Swazie and Fameuse. J. F. Dempsey, of Albury, secured first for cooking apples with Duchess, Spy, King, St. Lawrence and Rhode Island Greening. Second prize was awarded to H. Marshall for Duchess, Alexander, Cayuga Redstreak, Greening and Spy.

EDUCATIONAL FEATURES.

In former years the Fruit Experiment Stations have made exhibits of fruits, good, bad and indifferent. This year a change was made and only the best varieties were shown. A division was made to bring out three main classes: The best eating varieties, the best varieties for commercial purposes, and the varieties best adapted

Trees Shrubs Vines

All lines of Nursery Stock, and everything **the best.**

All goods true to name or money refunded.

Patronize a Genuine Canadian Nursery

Agents wanted. A post card brings our catalogue.

The Helderleigh Nurseries

E. D. SMITH, Winona, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

to colder sections. In the last class were such varieties as Duchess, Longfield, Sweet Bough, Swazie, Pewaukee, Wagner, King, Wealthy, Tolman Sweet, Greening and Spy. A mere glance over this exhibit enabled the anxious farmer to select varieties suited to his locality, and also most profitable for whatever purpose he intended growing. Another creditable feature for which the Ontario Department of Agriculture was responsible was the excellent display of insects and fungous diseases which worry the fruit grower. This fine exhibit was in charge of T. D. Jarvis, B. S. A., lecturer in entomology and zoology at the Ontario Agricultural College, and either Mr. Jarvis or Mr. Andrew Haynes, of St. Catharines, who has been assisting in the spraying experiments in the Niagara district during the summer, was present to answer questions and give information regarding the pests. Great interest was taken in the plates of fruit illustrating the value of spraying with the lime sulphur wash. Treated and untreated fruit were shown side by side. Specimens of fruit and branches of plums, pears and apples affected with San Jose scale were shown, along with such troublesome fungous diseases as apple scab, bitter rot, black and brown rots, pear scab, mildew of the grape, and other diseases which destroy the different fruits. The exhibit, also, contained a collection of injurious insects in the different stages. Beside these were specimens of leaf, twig, or fruit showing the work of these insects and diseases with the life history of each.

Microscopes were supplied so that the spores could be distinctly seen and the orchardist taught to identify them in his own orchard or garden. Small bottles contained samples of commonly used insecticides and fungicides, and beside them were the formulae for making the solutions. There were also in this instructive

Classified Advertisements

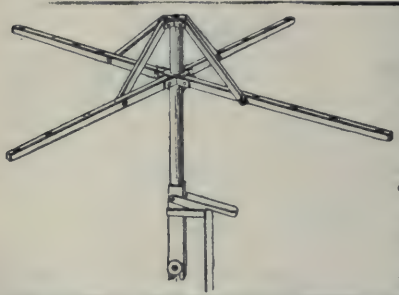
Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

FOR SALE CHEAP—ONE OF THE CLEANEST and best equipped greenhouses in Toronto. Everything in splendid condition, carnations planted, excellent stock of ferns and general stock of plants, 10,000 feet of glass. Apply at once to F. C., care of The Canadian Horticulturist.

APPLE GRADER. A FIRST-CLASS PETTIT Fruit Grader, in perfect working order, for sale at a bargain. Address L. Woolverton, Grimsby, Ont.

APPELEXPORTFIRM—A YOUNG MAN AT present engaged in the fruit trade in England, speaking Danish, Swedish and German, is seeking engagement in Canada. RHB, The Horticulturist's Office.



The Davis Clothes Line Reel

16 ft. diameter
130 ft. of line

Write for our free illustrated circular.

The Waggoner Ladder Co. Limited

London, On t

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY

Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.

GET OUR CATALOGUE OF
RUBBER STAMPS
AND STENCILS
THE SUPERIOR MFG. CO.
58 ADELAIDE ST. W. TORONTO.

GEO. VIPOND & CO.
Fruit Commission Merchants
MONTREAL
Reliable——Prompt——Safe

Get Top Prices For Your Butter.

The use of a little care, and WINDSOR SALT, will improve your butter 100%.

Windsor SALT

is absolutely pure—disolves quickly—and is easiest to work. It makes the most delicious butter that readily brings the highest market price.

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

collection weeds and weed seeds, common clovers and other leguminous crops which are used as cover crops, bottled to show the nitrogen-gathering nodules on the roots, and mounted specimens of three of the commonest bees which fertilize the red clover.

"The object of this exhibit," said Mr. Jarvis, "is to teach the farmer to know the insects and fungous diseases which cause him endless trouble, to show him the work done by each, and by use of the microscopes to arouse a deeper interest by showing him the forms described."

THE PRIZE WINNERS.

Lack of space prevents the publication of the prize winners in detail. In peaches the prize winners were: Messrs. E. Freel, Niagara-on-the-Lake; Gordon Bunting, St. Catharines; Robt. Cameron, Homer; Stanley Prest, Stamford; Alex. Glass and A. D. Broderick, St. Catharines. Awards for grapes went to F. G. Stewart, Homer; Lewis Haynes, S. D. Furminger, J. H. Smith and A. D. Broderick, St. Catharines; H. P. Secord and Wm. G. Selby, Homer, and Stanley Prest. For grapes grown under glass John Chambers, Toronto, and F. R. Merritt divided the honors. S. D. Furminger, Harry Marshall and G. Bunting had the best quinces. The prizes in the different sections for pears were awarded to Geo. H. Wild and Harry Marshall, Hamilton; W. M. Robson, Lindsay; Harry Dempsey, Rednerville; S. D. Furminger, A. D. Broderick, J. H. Smith, G. Bunting, C. Riordan and Alex. Glass, St. Catharines; Thos. Delworth, Weston, and Robt. Cameron, Homer. The prize plums were owned by

COLD STORAGE
—FOR—
APPLES

THE GOULD COLD STORAGE CO'Y.
INCORPORATED
1898
MONTREAL

Linde Cold Air System, Perfect Ventilation, Right Temperatures, Centrally Situated, close to the principal Dealers.

COR. CREY NUN & WILLIAM STS. MONTREAL
O. M. GOULD, Manager

Beautiful Flowering Bulbs
FOR FALL PLANTING

We offer a complete assortment of

Azaleas	Hyacinths	Spireas
Crocus	Lilies	Snowdrops
Freesias	Narcissus	Tulips, etc.

Bird Seeds and Supplies, Poultry Supplies, Flower Pots and Fancy Vases, Lawn Grass Seed, Vegetable, Flower and Farm Seed of all Descriptions

Send for our illustrated descriptive Catalogue—now ready—FREE. Special prices to Horticultural Societies on application.

SPECIAL OFFER

Collection No. 1—For house culture, 26 Bulbs, retail price 80c, **for 50c postpaid.**

Collection No. 2—For garden culture, 50 Bulbs, retail price 95c, **for 50c postpaid.**

JOHN A. BRUCE & CO., Hamilton, Ontario
Seed Merchants——Established 1850

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

Messrs. Marshall, Cameron, Bunting, Glass, Furminger and Stewart.

Among those who were awarded prizes for apples were Harry Dempsey, Rednerville; Harry Marshall, Hamilton; Frank Onderdonk, J. F. Dempsey and S. Pem Peck, Albury; James B. Guthrey, Dixie; W. M. Robson, Lindsay; Mrs. Boyd Burk, Brougham; Dr. Foster, Oakville; Norman Brown and Edwy Brown, Eglinton; R. Houston, Dixie, and Alex. Glass, St. Catharines. For packages J. F. Dempsey got first and Frank Onderdonk second for one barrel for export, while the prizes for apples in boxes were divided among Harry Dempsey, J. F. Dempsey, Frank Onderdonk and Gordon Bunting.

First prize for best display of fruits went to St. Catharines Horticultural Society, while the South Fruit Growers' Association, of St. Catharines, got second. A. D. Broderick won first and G. Bunting second for fruit decorative centre piece.

The Tomato Situation

The weather around Hamilton for the past four weeks has been most favorable for the tomato crop, but notwithstanding this the late varieties are a short crop and most of the supply received by the canners has been early varieties. In former years, when canners accepted these, the growers were generally docked a number of bushels on each delivery, but this year they were very glad to receive them without resorting to this imposition. The price paid for late tomatoes on the Hamilton market during this season has ranged from 35 to 50 cents per bushel. From this a good idea of the scarcity may be gained. On account of the refusal of the canners to pay 30 cents on straight contracts a number of the growers have shipped almost their entire crop to outside points.—(E. J. Mahoney, Hamilton.

AROUND ST. CATHARINES.

The favorable weather has brought the tomatoes around rapidly, and this week all the factories have been busy. Prices remain the same except that a few of the surplus tomatoes have, I believe, been sold for 25 cents.—(W. C. McCalla, St. Catharines.

PRINCE EDWARD COUNTY.

The tomato fields are doing well owing to excellent weather. Factories are running full capacity.—(John W. Hyatt, Westlake.

Improved Service

Now that the service for the exportation of apples and other green fruits is about to commence, the question of facilities furnished by the steamship lines from Montreal is of vital importance to exporters of these commodities. The improved service and equipment installed on the vessels sailing from the port of Montreal in recent years are largely responsible for the increasing demand for Canadian fruit, which can now be landed in Great Britain in first-class condition. The progressive spirit of the managers of the steamship lines has this season inaugurated a steamship service far in advance of anything that has been done heretofore. It

ATLANTIC REFRIGERATOR SERVICE

THOMSON LINE

Montreal and London Service

S. S. Devona, cold storage and cool air, **Oct. 7th**

S. S. Hurona, cold storage and cool air, " **14th**

S. S. Fremona, fan ventilation only, " **21st**

S. S. Cervona, cold storage and cool air, " **28th**

S. S. Kildona, cold storage and cool air, **Nov. 4th**

Direct service to Newcastle, Leith and Aberdeen. Sailing cards will be furnished on application.

DONALDSON LINE

Montreal and Glasgow Service

S. S. Lakonia, cold storage and fan ventilation, **Oct. 5th**

S. S. Salacia, fan ventilation, - - - - - " **12th**

S. S. Kastalia, cold storage and fan ventilation, " **19th**

S. S. Tritonia, fan ventilation, - - - - - " **26th**

S. S. Marina, cold storage and fan ventilation, **Nov. 2nd**

SPECIAL ATTENTION GIVEN TO STORAGE AND HANDLING OF APPLES.

FOR SPACE APPLY TO

THE ROBERT REFORD CO., LIMITED

STEAMSHIP AGENTS

Montreal, Toronto, Portland, Me., St. John, N. B.

TORONTO OFFICE: Room 110, Union Station **D. O. WOOD, Western Agent**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

is needless to mention the record beaters placed in the Liverpool service by the Allans this season, as a perusal of the daily papers from week to week clearly shows that there is nothing on the Atlantic that is superior to this service either for freight or passengers.

On the Glasgow service of the Allan Line such vessels as the Ionian, Mongolian, Pretorian, Sicilian and Corinthian speak for themselves. These vessels make the passage from Montreal to Glasgow in eight to 10 days and are equipped with the latest system of refrigerator and ventilated compartments for the carriage of perishable freight. The loading and unloading is not done by the ordinary stevedores, but by special and experienced men employed exclusively by the Allan Line for this purpose, thereby ensuring the best results. The vessels of this line sail regularly from Montreal every Thursday throughout the season of St. Lawrence navigation, so that the shipper may time his freight accordingly and be sure that it has been forwarded on the steamer for which it was intended. Exporters of fruits would do well to get into communication with Messrs. H. and A. Allan or their representatives, who will be pleased to furnish all information required.

Process Showing at the Fairs

A feature which is coming into vogue at the agricultural exhibitions is the exhibition of the process of manufacture of various articles. Where the article shown is one of common use, the process of making it is always of great interest. At Toronto the process building was always crowded. At the Western Fair at London the Waggoner Ladder Company set up a bench and one of their workmen, with his appliances, worked away as if in the factory for several days of the fair, putting in the steel wire reinforcement which is one of the advantages of the Waggoner Extension Ladder. A very much interested crowd stood around the place the whole time, and the result was—several times larger sales than the company ever made at the fair before.

Showing the process produces interest, and if it illustrates a really good thing the man who sees it is convinced. At the West Middlesex fair, at Strathroy, the company showed the process again with similar results. There is a general feeling on the part of the managers of these fairs that it will pay to encourage these process showings and keep out the "midway" shows, which have for some time been discrediting our fairs.

Spraying Machines at Toronto

One of the most interesting exhibits at the Toronto National Exhibition for the fruit growers was the Little Giant Sprayers, shown by the Perkins & Paine Co., of Port Dover, Ont. As they were the only power sprayers on the grounds these machines attracted much attention. Besides being the cheapest machine on the market, it is also the only one that automatically sprays two rows of grapes or small fruits at the same time.

Many United States fruit growers expressed themselves as being highly pleased with the

HYACINTHS ❧ TULIPS

NARCISSUS

CROCUS ❧ SNOWDROPS

OUR BULB CATALOGUE

describes the above and many other other kinds. **It tells how to plant**, when to plant, where to plant, and what to plant.

PAEONIES, HARDY PHLOX, CRIMSON RAMBLER AND HARDY HYBRID ROSES, ORNAMENTAL AND FLOWERING SHRUBS.

CATALOGUE ON APPLICATION.

J. GAMMAGE & SONS, = London, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

machines and as being anxious to have them manufactured in the States. The firm was offered a large amount for the right to manufacture these machines across the border. Mr. Perkins stated that they have booked enough orders this fall to keep their factories working full time all winter. These machines are now in perfect working order, having long since passed the experimental stage. Fruit growers may feel assured that they are obtaining the best when they purchase a Little Giant Sprayer.

Loading and Stowage of Apples on Steamers

One of the most important points about safe carriage of apples to Europe is the loading and stowage on the vessel. The Donaldson Line to Glasgow has a most enviable record in this respect, and shippers will do well to look into this feature when asking for space.

The refrigeration and fan ventilation of the steamers on this line is almost perfect, and inspection of them is invited. Another feature of this line is that the vessels take a north Atlantic course, thus giving the apples the benefit of the coolest sea voyage, so that with proper loading and stowage fruit on this route, especially during the early part of the season, should arrive in first-class condition. (See advertisement.

A Useful Novelty for Everyone

Stone and Wellington have pleasure in offering to their patrons and the general public another new novelty in the shape of the handy saw. This is a steel saw, not only useful for trimming trees, but for cutting iron or other hard metals. Will cut through bolts, nails or any iron metal without injuring, and with perfect ease. It is handy for the farmer, fruit grower, and townsman. By taking large quantities we are enabled to offer them at 50 cents each, or they can be obtained through any of our reliable agents for the same money.

Little Giant Sprayer.—In a recent issue of The Horticulturist there was published an advertisement, including a photograph of a Spramotor outfit, under which it was stated that the illustration showed one of these machines being operated on the premises of Mr. E. D. Smith, of Winona. This was an error on the part of the printer, as it should have read Mr. E. M. Smith, of Winona. Messrs. Perkins & Paine, of Port Dover, the manufacturers of the Little Giant Sprayer, inform us that Mr. E. D. Smith, of Winona, is using one of their sprayers and that he does not possess one of the Spramotor machines.

Write For It.—A valuable and beautifully illustrated catalogue has been sent out by the Steele, Briggs Seed Co., Limited, of Toronto, who also have branches at Hamilton and Winnipeg. Special mention is made of bulbs and house plants for winter decoration. The growing of bulbs is claimed to be simple, and this progressive firm offers a pamphlet on "Bulbs and How to Grow Them" free.

MONEY EASILY MADE BY OUR READERS

$10.00 will be given away free by The Canadian Horticulturist to readers who purchase goods from it's advertisers. All you have to do is to tell the advertisers you read their advertisments in The Horticulturist

HOW TO OBTAIN THE MONEY

$5 will be given to the person who buys goods to the greatest value from advertisers in this issue before **October 30, 1905.**

$5 will be distributed, one dollar to each, among the next five persons making application, who have purchased goods from our advertisers.

We have secured a limited number of an up-to-date work "The Orchard and Fruit Garden," recently published by E. P. Powell, one of the best known authorities on this continent. It contains 320 pages, and is well illustrated. We will give one of these books to any of our readers who would prefer it to one of the one dollar prizes. This book retails at $1.50.

Readers must tell the advertisers they saw their advertisements in The Horticulturist.

A valuable premium will be given to all who do not win cash prizes. A premium will thus be given to everybody who buys something from advertisers in The Horticulturist.

When applying for a prize readers must inform this office of the name or names of the advertisers they purchased from and the value of their purchases. Application for this bonus must be made before **November 15, 1905.** Address

ADVERTISING MANAGER,

The Canadian Horticulturist, - Toronto, Ont.

The Belleville Nurseries

for hardy varieties of

Fruit and Ornamental Trees, Shrubs, Vines and Evergreens

guaranteed true to name.

Special prices on Norway Spruce, 3 to 5 feet, good stocky trees, and several varieties of the best Winter Apple, good healthy trees, ¾ in. and up, grade, 6 to 7 feet high. Send list of wants for prices before placing your order.

W. C. REID, BELLEVILLE, ONT.

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

The Canadian Horticulturist

NOVEMBER, 1905

VOLUME XXVIII NUMBER 11

METHODS OF SELLING FRUIT

A. E. SHERRINGTON, WALKERTON, ONT.

AFTER visiting all of the principal fruit markets in England and Scotland, I am more convinced than ever that cooperation among the growers and shippers of Canada and other countries is an absolute necessity if the growers are to retain that market and receive a share of the profits on the products of the orchard. I saw some dickering in Great Britain last summer that could scarcely be called square dealing, in fact, it was anything but square. Who was the loser in this particular transaction? No one but the shipper. The commission merchant had his commission and was at no loss. The time is coming when our fruit and other produce will be sold F.O.B. here, instead of by consignment.

Retail merchants I saw expressed themselves as very much pleased with our method of cooperation in packing apples, and agreed that all products should be sold direct, and not handled on commission.

I interviewed several retail fruiters in regard to shipping apples in boxes. A number of them had had no experience with boxes, but said they were willing to give them a trial, believing that they would be very convenient for their trade. Others who had handled apples in boxes were perfectly satisfied that it is the right package for the finer sorts.

During the short time that I was in Europe I had no difficulty in arranging with reliable parties to take all their requirements from our cooperative association F. O. B. here. If the right kind of man was over there one season he would be able to place nearly all the apples grown in Ontario by straight sales to reliable parties. It does not pay to send anything to Europe but first-class goods. When good fruit was offered the buyers vied with each other in bidding, but when the goods were inferior bidding was slow.

It is a great mistake to mark the barrels wrongly. I saw some apples on Covent Garden market, London, put up at Colborn, Ont., marked XXX Duchess. I opened some of the barrels and found one marked XXX Duchess which had not a Duchess in the barrel. They were green apples without a particle of color. Another barrel contained Duchess, but only number two, and marked XXX. This kind of packing will not do. It can be prevented cooperation in packing.

The need for greater cooperation on the part of Canadian growers becomes more apparent every year. Cooperation will mean better packing and higher prices and will strengthen the fruit industry in all its branches. Wherever it has been given an honest trial in Ontario it has been a great success. The more of these associations we can have the better for the growers of the province.

COOPERATIVE WORK IN ONTARIO

THE rapid increase in the number of fruit growers' cooperative associations is one of the most encouraging signs of progress in the development of the fruit industry in Ontario. The success of the St. Catharines, Walkerton, Chatham and Forest associations has done much to educate the growers of the province in regard to the value of cooperation in the handling of fruit. Not only have these associations had a successful season this year, but success has also attended the efforts of the two new associations at Oakville and Thornbury.

The Oakville Fruit Growers, Limited, was the name adopted for the company organized last spring by some 40 growers in the vicinity of Oakville. A few days ago a representative of The Horticulturist visited this plant and was greatly impressed by the large amount of business being done.

The building, in which the fruit is packed, is a temporary structure, 50 x 80 feet long, located on Mr. Inglehart's property near the railroad. The fruit is received at one end of this building. There is a passage way down the centre, on each side of which are bins in which the fruit of the members is stored as rapidly as it is received. On each side of this passage, at the opposite end of the building from which the fruit is received, there are two large spaces. In one of these the fruit is graded and packed. The culls are dropped through a chute to the basement. As soon as the apples are packed the barrels are rolled across to the space on the opposite side of the passage, where they are kept until taken to the station. The culls are sent to the evaporator. A careful record is kept of the amount of fruit sent by each man, and of the number of barrels of first and second grade fruit, and of culls, it grades into.

"Our first season," said Mr. Walter A. Inglehart, the manager, "is going to prove a most successful one. At the beginning of the year we expected to handle some 4,000 barrels, but we are going to handle about 7,000. We have some 40 growers in our company, and at the outset placed our shares at $10 each, on which we have called up 25 per cent. The fruit of our members is picked by them, and all the fruit, including the culls, is brought direct to the packing house. We only handle apples.

"We have been paying $1 a barrel for all fruit packed during the week. The balance is kept for working capital, and the surplus will be divided at the end of the season. We do not pay dividends, as everything goes back to the growers. All our stock has been subscribed. The prices we have

Part of the Stock at Oakville Waiting for the Graders

obtained are higher than most of the growers in this section, who are not members of our association, have been able to secure for their fruit. I look after all the grading and packing and the sale of the fruit, in return for which I am paid a regular salary.

"We made a considerable saving on our supplies at the beginning of the season by purchasing in bulk. We bought the stock and contracted with a cooperage firm to make the barrels. They have cost us an average of 35c. In this way we have saved at least two cents a barrel, or $140 on this item alone. In order that we might work at night during the busy season we have had the building equipped with electric lights, and in this way are able to get through out work more expeditiously.

Packing Apples at the Oakville Fruit Growers, Limited

"So far the venture has been a perfect success. Our growers have been delighted with the results obtained. Some buyers have been offering our members inducements to leave the company and to sell their fruit independently, but as yet only one grower has done so. Every member of the company had to sign a statement at the beginning of the season agreeing to sell all his fruit to the company, and with the exception of the one man referred to they have all done so.

"Some idea of the amount of the work we do in a day can be gained from the fact that we have been sending as much as two tons of fruit a day to the evaporator. During a great deal of the time I have to keep 10 to 12 assistants at work, who are employed by the month. In addition to the packing house we have a storehouse which will hold 2,000 barrels. Two teams are kept going all the time taking the fruit from the packing house to the station and storehouse and looking after other work."

"Have any of the growers complained of the manner in which their fruit has been packed?" was asked.

"No," replied Mr. Inglehart, "they all seem well satisfied. I have had experience as a buyer of fruit, and they seem to have confidence in my packing. One thing I have noticed is the great difference in the quality of the fruit sent in by the different growers. The fruit of some growers grades 50 per cent. firsts, while that of other grades 50 per cent. culls. Considerable fruit has been injured by the codling moth, but there has been little trouble from fungi. To keep everything straight I have found it necessary to balance all the stock on hand and the fruit shipped during the week every Saturday night. In this

way we keep careful track of the amount of fruit sent in by each grower, when it was packed, when shipped, and all other information concerning it.

"The great bulk of our fruit has been purchased by British importers, and will be shipped to three or four different firms. In this way we will save the commission of the middlemen who have generally bought the fruit of our members. We have adopted the Oak Leaf brand, and all our boxes are marked with a stencil. In this way we hope to establish a demand for our fruit which next year will help us dispose of our supply.

WHAT THE GROWERS SAY.

Several growers in the Oakville district who have contracted with the Oakville Fruit Growers, Limited, were interviewed by The Horticulturist and all seemed well satisfied with the outlook for good returns for this season's crop.

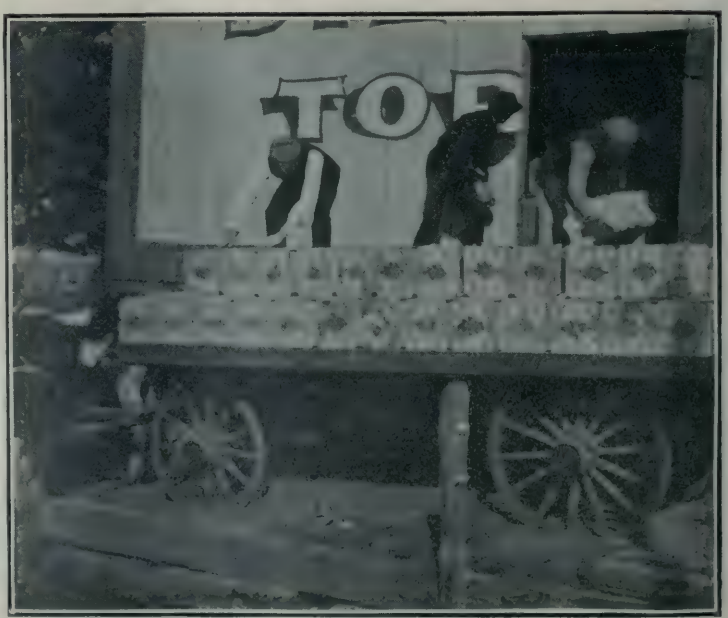
"Selling to the company," said Mr. F. G. McCraney, "is the only way. Selling to buyers is always more or less unsatisfactory. The buyer looks over an orchard and then makes an offer, grading firsts and seconds to suit himself. If the fruit turns out well he takes nearly all, but if it is not good and the Old Country market is dull, only a few are taken and the bulk of the crop is left on the grower's hands. The buyer makes the grade and practically fixes the price as well. He will never make a contract in writing, so that there is nothing to compel him to take the fruit.

"When selling to the company all the fruit is brought in, and Mr. Inglehart and his men do the grading and packing, while the managing committee attends to the selling. I have every confidence in this method, and if rightly managed it should prove more satisfactory to the grower than the old way. It is a new departure in this section, but something must be done to make the apple industry pay better, and I intend to stand by the company. There should be one in every neighborhood."

A BETTER SYSTEM.

"This method is far superior to the old way," remarked Mr. Alex. Belyea. "When sales are made to the buyers the apples are picked and left in heaps under the trees. Sometimes the buyer does not come for days, and often weeks, and the fruit lies there exposed to weather, mice and insects. The top layer of some varieties is damaged by the sun, and the mice and insects destroy many.

"When contracts are made with the com-



At Oakville—Eighty-Five Boxes Ready for the Car

pany there is no waste. The fruit is put directly into barrels and taken to the packing house. There, uniform grading and packing is done and the Old Country buyer sees that he can get larger quantities and a more uniform grade, and pays a better price.

PRINCE EDWARD ISLAND'S POOR APPLE CROP

REV. FATHER A. E. BURKE, ALBERTON, P. E. I.

SELDOM or never has a more bounteous crop been garnered into the barns in Prince Edward Island than this year. The fruit crop, however, is not abundant, and, grateful as we are for small favors, there is no ground for exuberance on this count.

Last year, when all the world enjoyed a full measure of apples, ours was fairly good too, but the conditions of the fruit market gave only moderate returns for the orchardist's toil. It was a very dry season—five months of complete drought, where rain is required every week for best results. The trees bloomed profusely, and, though they bore a fair crop, strange changes in the size, color and quality of the fruit were noticeable. Owing to the extreme drought the Ben Davis apples had become ripe enough for eating by October, whereas, ordinarily, they are not so mellow until the following June. The same changes were common to all the winter varieties. The general result was only a medium return from the orchards, and, naturally, fruit growers expected an average crop for 1905.

Why, then, are we so stinted in the apple production? The trees bloomed; there were no frosts at the time to kill the blossom; the protection, defective enough, it is true, was no worse than usual. There must be some other reason for this dearth of fruit. Here is the explanation. The trees passing through such a drying-out period in 1904 were engaged in a life and death struggle. They were able to fix fruit buds but had not sufficient strength to vitalize them thoroughly. These buds were sufficient to produce blossom but not strong enough to fix fruit. This year's famine, therefore, is due to last year's drought. Nay, more. In many cases the trees themselves were unable to store up sufficient nourishment to hibernate, and hence the many mysterious cases of what is called "blasting," resulting in partial or complete destruction of the tree.

THE REMEDY.

The natural question is, could these misfortunes not be avoided? Might such conditions not militate against the Island as a fruit country? No easier task could be set than the conservation of our apple areas. The trouble is, the orchards are not sufficiently fertilized. With water, the soil will give crops every season. In dry seasons they grow where there is sufficient humus in the soil. If the orchards had been well fertilized, they should have been able to produce vital fruit buds for this season. In fact, some of the well cared orchards did do so. Protection must be found in this exposed province every year and sufficient fertilizers must also be added if prime fruit is to be grown and money made.

The far famed Annapolis Valley, too, is comparatively bare of fruit. A study of conditions there and a comparison of the situation and soil with Prince Edward Island shows that they have an advantage in shelter. The valley is completely protected by a fringe of hills. On the island the protecting forest has been shamefully cut down until artificial windbreaks have to be depended on.

Despite untoward circumstances, Prince Edward Island fruit at the Charlottetown show excelled the exhibits at Halifax and

Frederickton. The judge, Major Sheppard, of Queenston Heights, said that Island fruit was easily superior to that from the other provinces. With normal conditions the quality of fruit grown here is unexcelled. The soil of the Annapolis Valley is not equal to that of the Island. With as much manure added as is used in the valley just as abundant crops will be produced. Prince Edward Island should be the best apple producing region in Canada—aye, in the world—but the growers have not learned enough about the business to bring the best results.

PROTECTION FROM MICE

IN Bulletin No. 144, Ontario Agricultural College, Guelph, Professor Hutt, in dealing with the damage done to fruit trees by mice in the winter, says that the rapid increase in numbers is due largely to the indiscriminate destruction of the farmer's best friends, the hawk and the owl. The hawks feed largely on mice by day and the owls take up the work by night. These birds should be protected so that the equilibrium of nature may be restored. Mice seldom harbor in a green crop and never on clean fields. They are found along old fence bottoms and in meadows. As there is usually some shelter for the mice near orchards it is advisable to guard against their depredations. In localities where snow falls early and remains on the ground all winter the simplest and cheapest preventive is to tramp the snow firmly around the base of each tree early in the winter. A mound of earth is also said to be effective in diverting the runways of the mice from the tree. Building paper or tar paper is frequently tied around the trunk and is recommended as cheap and effective.

The remedy recommended by Prof. Macoun, and practised at the Experimental Farm at Ottawa, is the use of veneer around the trunk. This veneer is cut six to 10 inches wide and 18 inches long from elm or other cheap wood.

Different methods are adopted by leading orchardists. "I use tar paper for all my orchards, both young and old," writes Mr. A. H. Brooks, of Dixie. "I have practised this method for three years and have lost only one tree in that time. That tree was girdled above the paper. Four years ago I banked with earth and lost 38 trees. These trees were all on the outside row near an old fence. I have taken away the fence, plowed the grassy bottom and put a wire fence in its place. By keeping the grass away from fence bottoms and practising clean cultivation, no lodging places are left for the mice. I have tried tramping the snow around the trees but always suffered considerable loss until I used the tar paper.

"I tie the paper around with binder twine very loosely so that when the trees swell the bark is not injured. In a year the twine will have become so weak that the tree readily breaks it as it grows. If tied tightly the bark will be injured if the string is not cut in the spring. One man and an assistant to carry the string and help in other ways can go over a 12-acre orchard in a day."

"In a sod orchard," said Mr. Jos. Tweddle, of Fruitland, to The Horticulturist recently, "mice are very troublesome. I dig the sod away about 10 inches around the tree and bank up 10 inches above the level of the ground with earth taken from another hole, burying the sods in this hole so that the mice will not find a convenient harbor. This is practically complete protection. Tar paper is more trouble, but is effective if banked around the bottom and extended at least one foot above the surface of the ground."

METHODS OF A SUCCESSFUL GROWER

ALTHOUGH apples are a light crop in most sections of Ontario, orchards can be found in favored locations with somewhat abnormal crops. One of the finest orchards seen this fall by The Horticulturist is owned by Mr. W. G. Watson, near Dixie. It is situated on a light loam which is moist during the summer if well cultivated, and is protected from the sweeping winds by bush.

The bearing orchard was set out at three different plantings. The oldest trees are 26 years old and the youngest 18. About half the trees bear one year and the other half the following season.

"There is not a tree," remarked Mr. Watson, "that should bear this year that has not got a large load. The Alexanders, Snows, Russets and Spys never had a better crop."

There are 12 acres in bearing, and Mr. Watson placed this year's crop at 1,200 barrels, but if the unharvested trees exceed this amount as much in proportion as those already picked the total will be nearer 1,600 barrels. For quantity and quality the fruit is hard to beat. Northern Spy trees only 18 years old were heavily loaded with large clean specimens, while Russets of the same age had almost more than the branches could support. Buyers had visited the orchard who said it was one of the best they had seen, and several made tempting offers, but Mr. Watson has sold direct to the Toronto retailers since he started 26 years ago and preferred to do the same this season. He realizes that there is more work, but does not believe in letting the commission men take a share of the profit. Six trips a week are made to Toronto, and in case of a special rush two can be made in a day.

These 26 years in the fruit business have taught Mr. Watson that to make the most out of his crop the fruit must be graded. "There are a few things in connection with raising the crop which an orchardist ought to know," remarked Mr. Watson, "but he must also know when and how to market the crop to make the most out of it. I always grade the fruit, selling the lower grades for what they are worth. A bushel of culls in 10, spoils the sale of the whole lot. The retailer will pay only low grade prices if he sees a few small apples in a box."

The picking is done as soon as the apples pull freely, because if left a few days half of them would be on the ground. Fallen apples are not wanted. The varieties come in one after the other, keeping the pickers busy from the time the earliest harvest apples are ready until the late winter apples are stored. Up to the first week in October nearly 600 barrels had been taken to Toronto.

Picking Fruit in Mr. Watson's Orchard

The picking is done from ladders. Two men start at one tree at the same point and work in opposite directions until they meet. Each picker is supplied with a round bottomed basket, holding about a half bushel,

which has a hook fastened to the handle. Low handles are preferred because it is necessary to get the basket to the bottom of the barrel to prevent bruising when emptying. Each picker empties his own basket.

Apples which will be marketed before heavy frosts come are left in the packing house. Those which will be sold before the middle of January are stored in an old dwelling house. In case frosts come a stove is in readiness. The winter varieties, which keep best, are stored in a large cellar under the house free from frosts.

"The apple store room," said Mr. Watson, "should be kept a little damp or the fruit will wilt. I prefer cement floors. Now and again I throw a pail or two of water in to keep moisture in the air. Russets should be well stored at once or they shrivel up. I never put apples in a pile on the ground as it makes extra work.

"With colored varieties it is best to leave them on the tree until a few fall, so that they will develop color. Apples will yellow after being pulled, but they will not redden. The bulk of our picking, however, is done before they commence to fall. I hate to see apples going to waste. All that are not fit for market are fed to the pigs, and special care is taken not to drive over any in the orchard. Most of the picking is done in the afternoon and late in the evening when the dew has gone. In the morning the trucking around is attended to."

EVAPORATING APPLES

THE question of obtaining some returns from the unsaleable part of the apple crop is important to every orchardist. In many orchards a considerable portion of the crop is lost each year which might be turned into ready cash or at least fed to stock. When the crop is heavy and prices are low this waste is especially great.

Large quantities are dried in some sections. Evaporators this fall are paying 25 cents a hundred for culls. Many farmers do this drying on a small scale. A few bags are carried into the kitchen in the evening and the family, and, perhaps, a few of the neighbors, do the work. One manipulates the peeling machine while others get around the table and quarter and core the apples. The smaller members of the family put the quarters on strings and hang them over the kitchen fire to dry. In some sections the stringing is dispensed with and instead the apples are placed on a screen and set outside on a scaffold in the sun to dry.

In the principal apple growing sections this drying is done on a large scale and growers who have great quantities of culls dispose of them to advantage by contracts with some of these evaporators. When the supply is great prices run as low as 10 cents a hundred, but 25 cents is not unusual for some of the most suitable varieties. The line of work in large evaporators was outlined to The Horticulturist recently by Mr. E. Roblin, of Carlton street, Toronto.

"When apple drying is done on a large scale," said Mr. Roblin, "kilns in which 400 bushels or more can be done in a day are used. As a general rule only culls are used but if the good apples are evaporated the finished product is of much better quality and considerably more can be obtained from 100 pounds of apples. For this work the apples should be well ripened on the tree. Russets and Baldwins are the choicest varieties for evaporation. If properly worked they give about 16 pounds from 100 of apples. Snows are very inferior. They are too juicy and yield only nine or 10 pounds from 100. They are never used unless other varieties cannot be procured.

"In a factory running 400 bushels a day,

30 girls are required to do the work. Eight machines peel and core 50 bushels each in a day and these can be dried in one kiln. The girls trim off anything the peelers leave and from the trimming table the apples are sent in bushel boxes to the bleacher, where they are subjected to strong brimstone fumes. This treatment makes them soft for slicing and prevents discoloration during the process of drying.

"Then the fruit goes to the slicing machine and is cut into rings. These slices are spread four or five inches deep on the kiln, and the evaporation is completed in 10 to 20 hours, depending on the depth. They must be well turned two or three times. When dried they are put in a heap in the curing room, where they are left for two or three days, after which they are turned and aired by being thrown from one corner to another and allowed to 'sweat out.' After seven to 10 days they are ready for packing. For shipment, two sizes of boxes are used—one holding 25 pounds, and a smaller and more common one weighing 15 pounds. After being packed, ordinary storage suffices. Frost does no harm and dampness makes them heavier. Too much heat makes them lighter unless they are packed when wet, in which case they sour and become like vinegar.

NOTHING WASTED.

"Nothing is allowed to go to waste. The peelings and cores are dried by the same process and packed tightly in barrels. This product is shipped to Germany and France, where it is made into jams, etc. Apples which are imperfect and too small for peeling are chopped and dried by similar process and packed, 275 pounds in a barrel. This barreled product is sent to France, and when grapes are scarce it is used in making some of the strong beverages. The champagne which reaches the Canadian consumer at $3 a bottle is made by this by-product from the evaporator."

FRUIT DEVELOPMENT IN BRITISH COLUMBIA

M. S. MIDDLETON, VERNON, B. C.

IN the early eighties a few experiments were made to test the adaptability of the then practically unsettled Okanagan valley for the growing of fruit. These were in the form of small fruit gardens, but clearly showed to such men as Lord Aberdeen at Vernon, G. W. Sterling at Kelowna, and a few others, the great industry which lay undeveloped in the fertile valleys lying between the picturesque hills of the Okanagan. These men began setting out large commercial orchards and the breaking down of several of the larger ranches into small fruit lots encouraged easterners and old country people to settle and take up fruit growing. From that time progressive strides have been made along horticultural lines. About 60,000 young trees were added this year to the many thousands which had been planted during recent years. These trees consisted chiefly of apples, pears, plums, cherries and peaches. Besides, some set out a few of the smaller fruits. The leading fruit, however, is the apple, which, roughly speaking, occupies about one-half of the fruit area, while the other fruits are about equally divided.

Up to three or four years ago the fruit development of the valley was practically in an experimental stage. A great number of the varieties planted as the most suitable for that section proved unsatisfactory. They developed and bore heavily, but, as varieties, were not suited to the market requirements. The more recent planters, having profited by the mistakes of the pio-

neers, are planting fewer varieties of more desirable qualities and now claim to have reached the commercial stage.

The principal tested commercial varieties might be summed up as follows: Apples—Gravenstein, Wealthy, Fameuse, King and McIntosh Red as fall and early winter varieties; Canada Baldwin, Spy, Winesap, Hubbardston, Nonesuch, Jonathan, Spitzenburg, Yellow Newtown Pippin and Cox's Orange as winter varieties. The last three varieties are highly recommended, but have not yet been well tried. Pears—Bartlett, Howell, Flemish Beauty and Buerre de Anjou.

Imperial Gage, Columbian, Bradshaw, Yellow Egg and Pond's Seedling are among the popular varieties of plums planted, while the Italian prune is a great favorite in the prune line. In the peach area the Crawford gives greatest satisfaction. It is a greatly disputed question as to what are the best varieties to plant. The best growers, however, advocate a comparatively few number of varieties. Three or four, or at most five, are enough. Then those interested in the fruit industry of the Okanagan valley can direct all their efforts towards making these varieties prominent and in a few years win a proud name for this valley whose fruit industry is yet only in its infancy.

COLD STORAGE FOR ONTARIO FRUITS

PROF. J. B. REYNOLDS, O. A. C., GUELPH, ONT.

THE question of cold storage in relation to the fruit industry is very important. Both the warehousing and transportation are of immense consequence to the fruit grower. There are in Ontario, as well as in the other provinces in Canada, many cold storage warehouses which are not patronized by the fruit growers as they should be. These warehouses, if patronized, would enable the grower to refuse low prices for his apples and other fruits, and to hold them for better prices next week, or next month, or next year. It usually happens with the enterprising fruit grower who takes advantage of storage facilities that the cost of storage is paid many times over by the difference between autumn and spring prices.

The actual effect of cold storage on produce is to delay the process of ripening in the first place, and retard decay after maturity. For instance, if a peach is to be shipped to a distant point, it must be picked from the tree in advance of dead ripeness, cooled as quickly as possible to 40 degrees F. or preferably as low as 31 degrees F., and held at the low temperature until it reaches the market. That peach, if left on the tree a day longer, might have been dead ripe, and in the course of nature after ripeness is reached decay sets in, and in a warm atmosphere proceeds very rapidly. But the amount of ripening that takes place in one day on the tree would require four to five days, or more, in cold storage, during which time the fruit is being carried to market. Then the molds, fungi, and bacteria that cause decay work very slowly at low temperatures. At the same time, if that hypothetical peach is picked before it has attained full size and some color, it will never attain the same quality in storage as it would have done if left longer on the tree. For storage or shipping, therefore, the picking of tender fruits is a matter requiring careful and trained judgment. A grower of cantaloups in Georgia has found that for best results he must go over his vines every eight hours.

Cold storage in transportation, however, is even more important, as it extends almost illimitably the bounds of the market. The British market is

accessible for many kinds of Ontario fruits, which a few years ago were perforce marketed at home. There is, also, a large and a rapidly growing market in Manitoba and the Northwest for the best fruit which southern Ontario can produce. This market is largely supplied by fruit from British Columbia, Washington and Oregon States. If, however, the facilities afforded by refrigeration are made use of this western market can be captured for Ontario fruit.

There are certain impediments in the way of this undertaking. In the first place Ontario fruits, while perhaps of better quality than those produced along the northern Pacific, do not ship so well and are more liable to disease. The difference in climate accounts for this, the very dry summer of the coast producing a dry fruit and insuring external dryness in picking and packing. Ontario fruit is more juicy, and our uncertain summer weather makes it difficult always to ship perfectly dry. Then, too, our more humid seasons encourage all kinds of disease from which the drier climate of the coast is practically immune.

These facts emphasize the necessity of careful picking, selecting, and packing of our fruit for export. The study of cold storage as a means of preservation of fruit has laid bare many of the deficiencies that have prevented complete success in the Ontario fruit business. Cold storage has brought to notice the difference between good and bad fruit and good and bad packing. It has made it clearly manifest that it pays to store and to ship only good fruit, that it pays to select fruit of even size and ripeness, that for tender fruits particularly there is a critical time which is best for picking. A thorough knowledge of the results of cold storage cannot fail to make the fruit grower, if he regards his own interest, more careful, more skilful, and, if possible, more honest

Cold storage is of particular importance to the province of Ontario. We have large quantities of perishable produce of high quality, which, to find a profitable market must be carried outside our own boundaries. We have a short producing season, necessitating the preservation by some means of our products to be consumed during the winter of forced inactivity. We have extremes of heat and cold, both conditions necessitating well-insulated walls for storage; and, on account of our geographical and political relations, we are at a great distance from our most important markets. For all these reasons cold storage, both stationary and in transit, is of first importance to Ontario, and only by taking advantage of it can the producer realize all that he deserves for his products and the consumer enjoy to the full the bounty given forth by Ontario's soil.

PUT FRUIT IN A STOREHOUSE

A. M'NEILL, CHIEF, FRUIT DIVISION, OTTAWA.

DURING a recent visit to the Brighton-Colborne district I noted a very large number of apple barrels remaining in the orchards packed and piled, usually directly on the ground, occasionally resting on a few boards or rails. The heavy rains of the previous day thoroughly saturated thousands of these barrels unprotected in the orchards. Many of them will remain there until they are dried out by the sun and wind. This is not so harmful as the old practice of piling the fruit itself on the ground exposed to the inclemencies of the weather. Nevertheless, it is a bad practice and accounts for many of the slack and wet barrels that afterwards appear in the foreign markets. The quality of the barrels now used is greatly improved. It

does seem, therefore, somewhat of a folly to expend so large a sum on a package and then allow it to deteriorate so seriously in the rain and sunshine.

Even supposing, however, there was no rain the exposure to the heat of the sun for a few days in the orchard will do more to ripen the fruit than many weeks in a properly constructed storehouse. Apples put in box cars warm, are almost certain to heat before they are placed on board ship, and then no accommodation, no matter how good, can save them. This has been the history of far too much fruit this fall. The weather has been warmer than usual, and the fruit inspectors report a much larger percentage of heated barrels than usual. In no case has there been a report of serious loss in cargoes that were reported as being of low temperature when they were shipped.

Plums in Quebec

AUGUSTE DEPUIS, VILLAGE DES AULNAIS, QUE.

THE plum crop at the Experiment Station at Village des Aulnais, County L'Islet, has been very abundant. Fifty-two varieties have given fruit this year, beginning with the "Jaune tres hative" and "Favorite hative," which were ripe August 10 to 15. These were followed by the Mirabelle Precoce and Reine Claude d'Oullins, very valuable varieties for localities where the summer is short. Then Bradshaw, Washington, Damson, R. Claude, Montmorency and others came in September, closing this month with Pond's Seedling, Grand Duke, and Coe's Golden Drop. We expect to complete the picking of these three varieties by October 18.

We pack the plums in half-gallon card boxes, put up in eight gallon crates, and they sell well at 40 cents a gallon. In October, 1902, I exported crates of these varieties to Great Britain through the firm of R. Barden, Quebec. The plums reached Liverpool in excellent condition and the returns were very satisfactory. I have shipped a great part of the crop to consumers. It causes more trouble and is more expensive, and we learn the taste of the families who consume them and of the hotelkeepers and retailers. We learn how the fruit reaches the people at a distance and the time that varieties will keep in good condition on the stands of fruit dealers. I have analysed the reports received and have come to the conclusion that 12 varieties out of 52 will be generally popular and profitable for this far northern section.

Gall Lice on Spruce Hedges

T. D. JARVIS, B. S. A., O. A. C., GUELPH.

My spruce hedge is being killed in patches by some insect which works inside a gall. I have used Paris green and have cut off the infected parts but nothing seems to be effective. —(J. C. M., Picton.

The insect which is troubling your spruce is what is known as the Spruce Gall Louse (Chermes abietis). As these insects in the feeding stage are within the gall, and the gall is perfectly water-tight so that no fluid can penetrate, poisoning is out of the question, and as in the migrating larval stage they do not eat, poison is equally useless. In the larval stage soap emulsion might be of some use if applied abundantly at the proper time.

The cheapest and best plan yet tried in Ontario is to clip off the galls as soon as they are noticed, say in June and always before the first of August, while the producers are in the galls, and immediately burn them. There is no use in doing this after the producers are out of the galls. When a tree is too much infested to be dealt with in this way it should be cut down and burned at once.

THE WINTER OF 1903-4 AND ITS EFFECTS *

R. W. SHEPHERD, COMO, QUE.

THE disastrous effects of the severe winter of 1903-4 on our orchards were not fully understood or observed the following spring. The damage was more far-reaching than at first supposed. Trees which were killed outright were replaced, and the percentage of these, in some localities, was high—fully 10 per cent. in some instances. But we also noticed that many trees were injured, more or less, which we hoped would ultimately survive. We observed, also ,that the fruit of 1904, particularly Fameuse and a few other varieties, was considerably undersized. This was attributable to the severe shock which the trees sustained during the previous winter. The trees, apparently, had not the vitality and vigor to develop their fruit to the normal size of other seasons.

During the 30 years I have paid attention to the cultivation of the apple I do not remember having exported such small Fameuse as those packed in 1904. In fact, No. 1 Fameuse of last year would have been considered No. 2 grade in 1903. Those trees which bore a heavy crop in 1904 (I speak for my own locality) in many instances were so exhausted by the effort and their vitality had been so impaired by the severe winter, that they have succumbed altogether. The past winter, although it could not be considered a severe one, was too hard for those trees which had struggled through last season and had borne a crop of undersized fruit. One has only to go through orchards in districts such as the Ottawa Valley, Lake St. Francis district and Chateauguay to see the number of trees that have succumbed after having feebly tried to develop foliage this season.

The varieties in these districts which have withstood the winter are those to be recommended and may be considered thoroughly hardy. In my orchard they are few, and include Rochelle (very hardy), Gipsy Girl, N. W. Greening, McMahon and Winter St. Lawrence. The following were more or less injured, Duchess, Wealthy, Scott's Winter, St. Lawrence and Canada Baldwin. Those considerably injured were Fameuse, McIntosh Red, Canada Red, Golden Russett and Red Astrachan. Those very badly injured were Ontario and Windsor Chief. Of 20 trees of the latter, eight years planted, only one survived, and it is not in satisfactory condition. We had great hope of it. The tree was vigorous and healthy and bore regularly. The fruit is large, handsome, and undoubtedly a long keeper of fair quality, and an excellent apple for profitable export in barrels. It is the apple our orchardists have been looking for, for a number of years, as one able to compete with those grown in Ontario, such as Northern Spy and Baldwin. I admit that the test was severe, and it may be several years before we have such another.

The Ottawa Valley and contiguous districts, such as Lake St. Francis, sustained an extra cold blast and a degree of exceedingly low temperature which was maintained a longer period than we have heretofore experienced, but the fact remains that the late keeping varieties we have been waiting for, and which we expected had arrived when Windsor Chief was brought to the front, has not stood the test. At Mr. Newman's orchard, on the Lower Lachine road, this variety has come through satisfactorily, but his locality is favorably situated in having the open water of the Lachine Rapids, which has the effect of tempering the cold. McIntosh Red seems quite as hardy as Fameuse. It is important to know that our two most popular varieties are of equal hardiness and can be planted with equal hopes of success.

One peculiar feature of damage done to

* A paper read at the summer meeting of the Quebec Pomological and Fruit Growers' Society.

our trees has been the splitting and lifting of the bark of the trunk on the southwest side. This has been noticeable only the present season. The cause is that those trees, last year, seemed to recover somewhat from the effects of the previous winter and started to grow too late in the season. All trees thus effected were those that had made good growth in 1904, but had been slightly injured by the winter, and they were mostly in cultivated ground. Trees of the same age in sod have not been much effected in the splitting of the bark of the trunk. This is another argument against too much cultivation, which in the province of Quebec induces too late growth. I have had so many surprises as to the far-reaching effects of the winter of 1903-4 that my confidence in successful orcharding in some localities has been considerably shaken.

Apples For Eastern Ontario

A. M'NEILL, CHIEF FRUIT DIVISION, OTTAWA, ONT.

A correspondent from Carleton County, Ont., writes:

> Our Ben Davis and Mann apple trees are dead, the Spy is dying, and the Pewaukee is showing signs of weakness. What winter apples would be the best to replace them?

As grown in Carleton County the Fameuse and McIntosh Red are at least early winter apples, and if the correspondent is growing for commercial purposes they will pay better than any other varieties he cares to plant.

For long keepers we could recommend Scott's Winter, Northwest Greening, and Milwaukee. It is quite possible that Wolf River will be hardy and will keep well into the winter. I would not recommend commercial orchards of these varieties.

Cherries Can Be Grafted

J. M. M'AINSH, WELBURNE, ONT.

IN the August number of The Horticulturist, page 294, I notice a question asked about grafting the cherry, and the answer is: "The cherry cannot be grafted so far as I know." I have grafted the finer varieties of cherry on the common red cherry, which, before the appearance of the black knot, was grown all over the country, and was usually propagated by suckers. I generally topgraft them. I do not find any difference whether the tree is large or small, so long as it is vigorous and healthy. In any case I only graft on small sized limbs, so that the larger the tree the more grafts will have to be put in. I do this work early in the season, just when growth begins, and cut the scions fresh from the tree. I graft them the same as I do apples, using cotton cloth saturated with common grafting wax and putting it around three or four times to prevent the wax from cracking.

Although cherries are not as sure as apples, yet I generally have more than 50 per cent. of the grafts to grow. Your correspondent says his trees were got from the fence corners two years ago and are thrifty and measure one and a half inches through the trunk. I consider such stock very fine to graft on, and if properly done I would expect all the way from 50 to 90 per cent. of them to grow.

Pruning and Spraying Trees

"WHEN trees are well pruned and well sprayed," said Mr. Joseph Tweddle, of Fruitland, recently to a representative of The Horticulturist, who visited his place, "they have a vitality which enables them to hold their fruit to maturity and prevents loss from winds.

Trees heavily loaded with fruit are not so likely to sway with the wind and to drop their fruit. Where pruning is well done it permits the sun to reach the fruit and results in the fruit being better colored."

FALL WORK IN THE STRAWBERRY PATCH

THOSE who have had experience in strawberry growing know how essential it is that the patch be kept free from weeds and in excellent condition during the first season. If weeds are allowed to go to seed they must be fought throughout the fruiting season or a greatly decreased crop will be harvested and more work is entailed in obtaining the diminished returns. The successful grower continues frequent cultivation until the growing season is ended.

Very few varieties of strawberries are capable of withstanding the hardships to which they are subjected during the winter and spring months in Ontario unless some protection is given. There are, however, winters when no covering is required, but it requires little time to add sufficient mulch each fall to ensure a healthy vigorous patch in the spring. Besides being an insurance, some mulch can be used which enriches the ground as well. It is not so much the heavy frosts which do damage to the plants; it is the alternate freezing and thawing of early spring when the snow has melted from the patch.

PUTTING ON THE MULCH.

The time to apply the mulch depends on the season. Most growers recommend putting it on as soon as the ground is frozen hard enough to carry the horses and wagon. In no case should it be applied before growth ceases. Different materials are used in different sections. Much depends on what can be obtained most readily. Strawy horse manure is most commonly applied. It is an effective mulch and the ground is fertilized by the finer particles being washed in by the rains. Straw alone is sometimes used, while swale hay is excellent for protection but does not contain the manurial element. It is not wise to put on too heavy a covering. It should be worked in well amongst the plants in the bare places and sufficient on top to hide the plants. Light straw could be applied in greater quantities than could some of the other mulches.

As a general rule the covering is removed in the spring as soon as danger of hard freezing is past. Bright sunny days and frosty nights are most disastrous. It is not wise to remove all the covering at once. The best plan is to rake the coarser parts of the mulch off the plants between the rows where a surface mulch is required to keep down weeds and conserve moisture during the spring and summer. Besides, a mat is afforded to the pickers while harvesting the crop and the sand is prevented from splashing on the fruit during rains.

Some growers apply a liberal mulch in the fall and leave it on late in the spring to retard the crop. With judicious mulching, covering the tops of the plants as well as the soil, the flowers and fruit can be retarded a week or 10 days. Care must be taken, however, not to leave the covering on too long or bleached weakly plants will result.

"I cultivate my strawberries frequently through the summer," said Mr. Wm. G. Horn, of Clarkson, "and always put on a mulch as soon as the ground is frozen hard enough to get on it with the wagon. Almost every enterprising grower in this section applies a mulch of some kind. Coarse strawy horse manure is best. The finer manure helps to fertilize the soil while the straw protects the plants from frosts.

"In the spring when growth is nicely started I pull the coarser stuff between the rows to conserve moisture and serve as a mat for the pickers. The crop can be delayed some time by leaving the mulch on, but if left there too long the plants are injured."

"I use horse manure as it comes from the transport stables in Toronto for mulching my patch," remarked Mr. H. Pickett, another successful strawberry grower, of

Clarkson. "Some use straw and others swale hay, but I consider manure is the best because it enriches the ground and gives a heavier crop. There are a few hardy varieties which do well in this section without mulching."

CARE OF PLANTS WHILE DORMANT

WM. HUNT, O. A. C., GUELPH.

THE tender pot hydrangeas such as Otaksa, Thomas Hogg, and similar varieties of these lovely summer decorative plants, should have their growth well ripened and hardened before the plants are consigned permanently to cool winter quarters in the cellar or basement. To secure this condition the plants should be left out of doors as late in the season as possible. It is not well, however, to expose the plants to more than five or six degrees of frost.

The plants can often be left under the shelter of a veranda or open shed until late in the season, so as to ensure a thorough ripening and a perfectly dormant condition. Less water can also be given them than in the summer, but at no time, either now or during the winter, should the soil be allowed to become very dry. Many of these and similar plants are often materially injured, if not killed outright, by drying them off too severely and for too long a time in winter. They should be kept in a dormant condition in a temperature of about 40 degrees until March or early in April. At that time the plants should be transferred to pots or tubs two or three sizes larger than the ones in which they have been.

Hydrangeas like a rich loamy compost to grow in, and plenty of water when growing and flowering in summer. They require very little, if any, pruning. Removing a few of the most prominent shoots so as to secure a shapely plant is usually all that is necessary. Prune, if necessary, in March or April, when repotting them.

A short period of dormancy, or semi-dormancy, is necessary for fuchsias and pot roses if they have been kept growing all summer. About the same treatment during the resting period should be given them as recommended for pot hydrangeas. A fairly moist cellar is preferable for all of these plants rather than a dry furnace-heated atmosphere.

To keep oleanders successfully a light, fairly warm room, cellar, or basement is best. They do not come out in the best condition if placed in a dark cold cellar or in a dry over-heated place. Oleanders are naturally moisture-loving plants. A temperature of from 45 to 50 and a moist atmosphere suits them in winter splendidly. It is advisable to sponge the leaves a few times during the winter with water, or soap and water.

Geranium Cut Back

Dahlia roots can be kept best in a temperature of about 45 degrees. These, also, do not like a dry, furnace-heated atmosphere, preferring a rather damp, cool cellar. The stems should be cut down to about six inches above the roots. The roots are very easily damaged by frost when exposed.

Anthericum Picturatum

A fairly dry cool place is necessary to keep gladioli bulbs successfully. Avoid putting them in a very damp cellar as it induces mildew and rot. A very dry cellar is not advisable for them. A dry basement, room, or cellar, where a temperature of 40 of 50 degrees prevails, suits very well. It is best to leave three or four inches of the flowering stem on the bulbs or corms for a few weeks after digging. I have kept gladioli bulbs successfully in a moist, cool cellar by stringing them to the joists in paper or cotton bags, or tied in bunches by the stems.

Old plants or stumps of geraniums, if not frozen too severely, can be taken from the bed or border, cut back and potted in sand or sandy soil and be kept through the winter with very little trouble. In digging, care should be taken not to break off the roots. Cut the top growth of the plant down so that only two or three inches of the base of the shoots remain near the main stem, and shorten the roots a little if very long. Plant three or four of these stumps or roots in some sharp fine sand or in half sand and half potting soil, in a six-inch pot. Water them well once and stand the pot away in a cool window or in a light cellar. One plant can be put in a four-inch pot or smaller if desired. Give them water only when the sand or soil is getting quite dry, more especially if they are put in the cellar. A temperature of 50 degrees suits them. If a large number of plants are wanted pack them closely in sand or sandy soil in boxes three inches deep, with holes in the bottom for drainage purposes. The sand or soil should be kept only barely moist, never wet or soddened. These roots or stumps can be potted at any time during winter or spring and will make fine bushy plants next season. They are frequently much better than autumn struck cuttings.

SOME FINE WINDOW PLANTS.

The Anthericum picturatum is suitable for window or house decoration in winter, and should be more commonly grown than it is. Its pretty variegated yellow and green leaves, together with its easy culture, makes

Impatiens Sultani

it one of our most desirable decorative plants for the window. It loves a warm shady position and a moist soil. There are two variegated varieties of this easily grown plant, but Anthericum vittatum is not as pretty as the picturatum. Young plants are produced, as seen in the picture, on the

Sansevierâ Zeylanica

stolons or flowering stalks, and can be easily removed and potted.

Belonging to the same family as the common garden balsam, is Impatiens Sultani or Zanzibar Balsam, often erroneously called the Patience Plant. It takes its generic name, "Impatiens," from the fact that like the garden balsam it bursts its seed-pods in a very impatient manner before the pods are really ripe. Anyone who has attempted to pick a pod of balsam seed in the garden before it seems to be mature can testify to the hasty impatient manner in which the seed pod bursts, scattering the seed in all directions. Unlike most common or local names the name "Patience Plant" is not at all appropriate.

A warm sunny position in the window gives the greatest profusion of the pretty rose-scarlet flowers. The magenta and salmon colored varieties of this plant also are very pretty and attractive. Under suitable conditions new plants are frequently obtained from self-grown seed.

Green Fly and Red Spider are the worst foes of this desirable window plant. Tobacco water for the Green Fly and a good sprinkling of clear water on the under side of the leaves for Red Spider are the most approved remedies.

Another pretty window plant seldom seen is the Peperomia. Its pretty silvery marked leaves look very effective in winter time. A warm shaded position in the window suits it best.

One of the best gas resisting plants we have for the house is the Sanseviera Zeylanica, or Bow-string Hemp plant. Although not of a graceful habit its tall spire-like silver-barred foliage is very effective in a collection of window plants. It will succeed best in a warm situation in the house away from the window, as its tough leathery leaves do not show the effects of dry atmosphere like other plants. It must be watered very sparingly, as over-watering or too frequent waterings will kill it unless it is kept in a very high temperature. It is a slow growing plant and requires very little pot room but plenty of drainage.

In the fall I always plow to the rows of small fruit bushes and grape vines to shed water away from the roots. In low ground the frost is liable to heave the plants out in case this is not done.—(A. W. Peart, Burlington.

FALL CARE OF LAWNS

TO have a beautiful lawn through the summer special care must be taken in the fall. Close and frequent cutting during the warm months gives the best effect, but when winter approaches it should not be kept cut so close as it is well to have considerable growth for protection during the rigors of winter. If, however, it is allowed to become too long there is danger of it forming a close mat and damaging its own roots.

GOOD FERTILIZERS.

If the grass has lost its fine rich green color or is becoming thin in places, fertilizers are required. Most landscape gardeners recommend adding a dressing of some of the coarser fertilizers in the fall, while others use a quickly soluble one in the spring. A thorough dressing of rich cow manure in the fall is as effective as anything in producing the desired growth, but the unsightly appearance and rank odor prevent its common use. A fine compost is claimed to be equally effective and has not these objectionable features. Commercial lawn fertilizers are suitable but very expensive. They are composed of salts of ammonia, soda and potash, and these elements can be secured for much less money in their unmixed state. Finely ground bone, fish, ets., being slowly soluble, may be used late in the fall or during winter when it will be washed down amongst the grass with the melting snows.

"We do not cut the lawn much after October," said Mr. E. F. Collins, of Allan Gardens, Toronto, to a member of The Canadian Horticulturist staff recently. "The grass should be quite a length before winter sets in so that the covering may protect the roots. If any fertilizers are to be used it is best to apply them early in the fall before frost comes so that they will have worked down through the grass and produce a rapid growth in the spring.

"The lawn should be kept perfectly clean. If rubbish is left lying around and leaves are allowed to collect, the grass is weakened in a few days and a bare spot frequently results."

Wintering Pansies

"THERE are plenty of pansies grown," said Mr. P. Fogarty, of Fogarty & Sons, Pape Avenue, Toronto, to a member of The Horticulturist staff who visited his place recently, "but the large grower must have something better than the 'other fellow' if he hopes to find a ready market.

"Pansies like cool weather, and the best quality of bloom is always produced on thrifty plants late in the fall or early in spring. With a good strain, a nice clay loam, and plenty of work, it is not such a difficult matter to winter the plants and have an abundance of bloom before warm weather comes in the spring.

"We start the seeds outside and then set the young plants in cold frames four inches apart each way. Some varieties come into bloom much more quickly than others. Our earliest usually show some bloom in the beginning of October and then others follow until the ground is frozen up.

"When cold weather comes the sashes are set on the cold frames to protect the plants. In case we have not enough glass to cover all the plants we spread straw over them. The straw is equally effective but gives far more work. In the spring as soon as fine weather comes there is a profusion of the finest bloom."

Let plants such as the calla lily rest until they show signs of growth and then shove them as rapidly as possible.—(A. J. Frost, Preston avenue, Toronto.

FALL AND WINTER CARE OF PLANTS*

E. F. COLLINS, PAPE AVENUE, TORONTO.

WITH the summer season over, the best method of saving the different roots and bulbs, and of keeping over some of the plants and flowers, which have given so much pleasure during the past season, becomes an important matter for the amateur gardener. The commercial florist or private gardener usually has a dry cellar or shed in which they may be kept free from frosts, but the amateur is often at a loss to know how to winter his plants safely.

Let most plants, such as dahlias, cannas and gladioli have a touch of frost before disturbing them. Then, after a few bright sunny days, the stems will begin to dry up. No set time can be made to cut them down as all depends on the weather. Usually about the middle of October they may be cut down to within six inches of the ground. Care should be taken to label the different kinds, or if the name is not known the color may be marked. The work is made much more interesting in the spring if you can tell what varieties have kept best. Besides, if you wish to exchange specimens with your friends, half of the pleasure is lost if you cannot tell the names or color.

To keep cannas or dahlias, dig them up on a dry day and shake off most of the soil, taking care not to break off any of the tubers. Place them one root deep in a box or something which can be moved about easily. If the weather is fine leave them outside in the sun during the day for a week or more. That will ripen the skin and dry up any bruises which may have been made in them, as where there are bruises is where they will start to decay. Thorough drying lessens that danger. After they are well dried, and before they start to wilt, they should be packed fairly tightly in boxes in a single layer (not one on top of the other) and some dry sand or soil should be shaken between them and on top, to cover the tops of the tubers. Then they can be put in some place where the thermometer stands about 40 degrees all winter. The great secret is to have them remain dormant and that is accomplished by a low temperature, a perfectly dry atmosphere, and having them well ripened before storing. The lover of flowers is often in too great a rush to put the bulbs away instead of giving nature a chance to ripen them.

Dahlias are more easily kept than cannas. Many of the newer varieties of cannas winter very poorly, especially if the tubers are not properly developed. If there are varieties which you are short of and want to increase, dig them up and put them in pots or boxes which will just hold the roots and give them a good watering. Place them outside in the sun each day while the temperature remains about 40 degrees, and do not give them any more water, as they should be perfectly dry. Most of the old growth will have dried up and they can be cut off about four inches from the base. Numerous green shoots will be seen starting up from the roots. If they are kept dry and near a window in the cellar or any cool place they will remain quite plump and green, but will not grow until spring. About March they may be cut in small pieces and planted. Nature will do the rest.

Gladioli may be dug and tied in bunches, but care must be taken not to cut any of them, as it is much better to let the stems dry off. If hung up in a dry place the corms can be very easily pulled away from them during the winter and stored in a cool place.

Tuberous begonias must not receive more than a very slight frost—just enough to wilt the foliage. When dug, most of the soil which adheres to the fibrous roots should be shaken off and the tubers packed

* A paper read at the October meeting of the Toronto Horticultural Society.

fairly tightly in boxes. The tops must be allowed to shrivel. They should never be cut off. If placed in a cool dark corner and kept dry they remain dormant until brought out in the spring.

Sometimes it is desirable to keep over a few favorite geraniums for the next summer. If placed among the other window plants they look unsightly during the winter. The best plan is to put them in pots or boxes just large enough to get the roots in, and give a thorough watering. If put outside in the sun each day and allowed to become perfectly dry all the leaves drop, the outer tissue becomes dry and the color changes to brown. Before frosts come during the daytime stop putting them outside but place them near a window and away from furnace heat. If not given any water they will remain dormant until spring. When growth is wanted they should be watered about once a week at first and placed in a warm room. In a short time new shoots come. Then the plants must be cut back severely to get the growth from the bottom. Plants treated in this way are much more suitable for setting out than those kept growing all winter.

The hydrangea is another plant which the amateur often tries to keep growing during the winter when it should be at rest. If the plants are outside let them remain there until there is 10 degrees of frost. In the meantime water them only when they are wilting. By gradually withholding the water you are assisting nature to ripen the wood and causing the leaves to drop. This encourages the development of buds for next season's growth. After the plants are perfectly dry and have lost most of the foliage, lay them in a box in a dark corner of the cellar and cover with dead leaves. This keeps them from drying out and also prevents growth. In this way nature is assisted in storing and retaining all the vigor in the plant, and in the spring when the warm weather comes and water is added growth begins and flowers come readily.

Mealy Bugs on Coleus

PROF. H. L. HUTT, O. A. C., GUELPH.

What is the best treatment for lice on foliage plants? They are not the green lice, but are oblong and flat and of a whitish grey color. I have tried tobacco smoke and soapsuds, but they were not effective.—(A. J. M. Ratho.

By the term "Foliage Plant" I suppose you refer to the Coleus. This plant usually goes by the name of Foliage Plant on account of its beautifully variegated leaves. The Coleus is frequently infested with small insects of a whitish color, known as Mealy Bugs. If they be examined closely it will be found that the insects themselves are very small, but they secrete waxy scales which give them a mealy appearance, hence the name Mealy Bug. This waxy cover serves the purpose of protection, and makes it difficult to destroy them by smoke or caustic solutions.

The best means of getting rid of the insects is to begin with fresh cuttings and exercise great care that none of the insects get a start on them. They will usually be found hidden in the axils of the leaves, and before they develop the waxy covering they are so small that it requires close observance to detect them. When they are present on young cuttings, the best way to get rid of them is to brush them out of their hiding places with an old tooth brush or other stiff brush, which should be first dipped in strong soapsuds. It is hardly worth while trying to save old plants which have become badly infested.

Do not crowd blooms for exhibition too closely. Each flower should be seen singly when arranged in the vase.—(Wm. Hunt, O. A. C., Guelph.)

THE DESERONTO COMPETITIONS

FEW horticultural societies in Ontario have been doing better work than has been done by the Deseronto society during the past year. The aims of the society, "to cultivate and improve the taste for flowers, plants and trees, and to assist the citizens in beautifying their homes by increasing their knowledge of plant life," have been nobly carried out. The society made valuable distributions throughout the year of seeds, bulbs and plants for spring and summer planting, and again in the fall for house culture. Then a creditable flower show was held on September 13.

But this was not all. Four competitions in well kept grounds were held. These were: Best kept grounds, professional; well kept grounds, exceeding one town lot, amateur, with assistance; well kept grounds, not to exceed one town lot, amateur, with assistance; and well kept grounds, not to exceed town lot, amateur, without assistance. In each case handsome prizes were offered. Special interest and enthusiasm was manifested in the competition between amateurs without assistance, and as a result Deseronto can boast of as many beautiful lots as any town of its size in Ontario.

Some of the contestants were handicapped in not having as favorable location or natural conditions as others and found it difficult to make the lot present a pleasing appearance to the passerby. Some, which would have stood near the top as beautiful gardens, could not be placed high because the effect from the street was not good.

The judging was done by Mr. E. F. Collins, of Allan Gardens, Toronto, to the satisfaction of all. He reports that the placing was rendered very difficult owing to a lack of uniformity in size.

First prize went to Mr. D. R. Jones, whose lot was favorably laid out for beautifying. It had a strong advantage in the contour of the land and in having the house to one side, so that an excellent view was presented to persons passing on the street. "Mr. Jones had a grand collection of plants, and his grass was in fine condition," said Mr. Collins. "Dahlias were most prominent among the flowers, while the tall-growing asters, gladioli, zinnias and

First Prize Garden, Owned by D. R. Jones, Deseronto, Ont.

Second Prize Garden, Owned by D. McClew, Deseronto, Ont.

geraniums were also beautiful. The general effect was good and everything was neat and clean."

Second prize was awarded to Mr. D. McClew. "This was a beautiful lot," said Mr. Collins, "but the general effect from the street was not so striking. The bedding plants were fine but more sparce in the beds than many of the others. The most prominent flowers and plants were gladioli, dahlias, tuberous begonias, asters, sweet peas and nasturtiums."

Third Prize Garden, Owned by H. E. Parks, Deseronto, Ont.

Mr. H. E. Parks secured third prize. "For back yard effect," remarked Mr. Collins, "this was simply perfection. The effect, however, must be for the public. The side entrance was not as nice as some of the others. There was a good effort made to

cover fences and unsightly places, and in doing this Madiera vine, nasturtiums, sweet peas and all growing asters were used to good advantage. Besides these there was a fine collection of dahlias, tuberous begonias and other plants."

Many societies in different parts of Ontario could profit by copying some of the features which the Deseronto members have found to be so successful. The distribution of seeds, bulbs and plants is good, and flower shows create an interest in horticultural work, but competition in lawns and garden flowers for the beautifying of the lots does infinitely more to impress the stranger with the beauty of the town, and if a few are enthused in this way others copy from them in order that their lots may look as beautiful as the one beside it.

FALL PLANTING OF ROSES

FALL planting of perennials and some of the shrubs is becoming more common every season. Many of the most successful amateur horticulturists report less loss from fall than from spring planting.

"I prefer to set out my roses between October 20 and November 10," remarked Mr. H. Spencer Case, of Hamilton, who always has a fine collection of plants. This leaves them plenty of time to become established before the ground is frozen up, and when spring opens the roots and canes are full of sap. The result is I get a good crop of bloom the first season.

"If put out in the spring there is a heavy strain on the bush for two or three weeks, and it does not make good growth. I have tried planting both seasons and had a lower percentage of dead bushes and more perfect bloom from the planting done in the fall.

"I always protect my roses with a straw mulch," continued Mr. Case. "In September or October I give a light pruning, cutting off about one-third of the cane to give a finer appearance and make the wood ripen better. Then before winter has set in, straw is put around them to a depth of about six inches. Some of the tenderer specimens receive extra protection by having the straw laid up around them.

"I have tea roses, hybrid teas, hybrid perpetuals and such tender varieties. They are all kept outside the year through and I do not lose two bushes a year."

Ready for Winter

Now and again some enthusiastic lover of shrubs wishes to grow some tender specimens. In this case special means of protection must be resorted to. Sometimes the bushes are laid down and covered; other gardeners wrap them with long straw; while others put empty barrels over them and fill in around the shrubs with dry leaves or straw. The accompanying illustration shows a tender specimen protected by leaves held around it by a rack. This method entails considerable work, but is successful if done after the wood is ripened and before heavy frosts come.

Potting Soil

WM. HUNT, O. A. C., GUELPH.

THIS is a good time of the year to make a pile of potting compost. Sod, about four inches in thickness cut from a pasture field or by the roadside where the soil is of a loamy nature, makes the best basis for a good potting soil for plants. Avoid taking the sod where couch or spear grass is growing. Stack two layers of the sod with the grass side downward, cover this with a layer of cow manure or well rotted stable manure to a depth of five or six inches.

Continue successive layers of these materials until the pile is large enough. Make the pile in the open not under cover. Cover the pile with some brushwood to keep off chickens and animals. It will be ready for use next May or perhaps earlier.

If a man goes into tomato growing on a large scale there is more money in growing them for the canning factory than for any other market.—(W. A. Best, Picton, Ont.

I depend on thorough cultivation, heavy pruning and plenty of fertilizer to give me returns.—(J. M. Metcalf, Grimsby, Ont.

FORCING TOMATOES

THE forcing of tomatoes for commercial purposes has been receiving considerable attention in different sections of Ontario during the past few seasons and an increasing demand is causing the growers to erect greenhouses each year. As the best market is found during the Christmas holidays and from then until Easter a special effort is made to have the crop ripe shortly before Christmas.

In Bulletin No. 231, Cornell University, Ithaca, New York, matters in connection with forcing tomatoes are dealt with by Professors Craig and Hunn. It is of the utmost importance that a suitable size and perfect shape be obtained. Sales are usually made at a high price and the consumer orders a definite number of fruits rather than a specific weight. Tomatoes of irregular shape are unattractive, and if large the cost would be too high, as they are served one to each individual. Therefore, it is necessary to have them of moderate size and as uniform as possible.

After four years testing at Cornell, several varieties have been found which are adapted to forcing. The characteristics mentioned as being desirable are: slow stocky growth; healthy, but not heavy foliage; a habit of forming the first cluster of buds near the base of the plant and a protruding stigma capable of setting fruit with a minimum amount of pollen.

BEST VARIETIES FOR FORCING.

In many respects the English types of tomatoes have proved to be far superior to those of American origin. They set fruit more readily in dark weather; they grow the fruit in clusters, ripening the full cluster within a short period, and they continue growing considerably longer. Among the most satisfactory American varieties are Lorillard, Mayflower, Combination and Pepper. For general midwinter forcing Lorillard and Combination (American), and Frogmore and Holmes' Supreme (English) are mentioned as being the four best.

Too copious watering before dull weather brought on a yellowing and spotting of the leaves which considerably checked the growth. The White Fly caused trouble, but was controlled by fumigation with hydro cyanic acid gas, using potassium cyanide 98 per cent. strength and a 66 per cent. solution of sulphuric acid with a small quantity of water. Experiments with different strengths and under different conditions showed that damage was done when the fumigation took place in daylight or when the houses were very damp. Safe conditions are stated as absolute darkness, a still air, a temperature below 60 degrees, and a dry house. Fumigation once each month with one ounce of potassium cyanide, two ounces of sulphuric acid and four ounces of water to each 1,000 cubic feet of house space will keep down the fly. Great care should be exercised in using this gas as it is sure death to all animal life.

In different parts of Ontario growers force a few for the winter market. "I like to have a few tomatoes ready for market before Christmas," said Mr. Jas. Gibbard, of Doncaster, to The Horticulturist recently. "The seed is started outside and as soon as the plants are large enough to handle I set individual plants in old strawberry boxes. By August they are about six inches high, and early in that month I transfer them to the greenhouse.

"I prefer planting them on ground benches in about eight inches of rich soil made from sod and well rotted manure prepared the previous fall. As soon as the plants begin to lop over I string them up. Some stake them with laths, but I find the stringing much less expensive.

"All side shoots must be kept nipped off, leaving only the terminal. If this is not done there would be too much top for the

roots and a small crop of fruit would result. Careful stringing and continual trimming gives fruit in greater quantity and better quality.

"The Green Fly and mildew are very troublesome in forcing tomatoes. Fumigation with tobacco keeps the former in check, but there seems to be no cure for mildew if it becomes established. Sulphur will check its spread, but the main thing is to keep the plants dry and maintain a free circulation of air. Water should never be used unless the sun is shining brightly. I always make it a point to do the watering in the morning. If the weather is cloudy no harm will be done to the plants if they are left for four or five days at a time.

"If the beds are well attended to and the weeds kept down the fruit will ripen by Christmas or earlier. There is always a brisk demand from the holiday season until April, but in May and June the market is flooded with the crop grown outside in the United States."

Keeping Potatoes

MARKET gardeners will be anxious to learn some of the methods adopted by Mr. Wm. Naismith, of Falkenburg, who has won first prize for collection of potatoes at the Toronto exhibition for 14 years in succession. Mr. Naismith went into Muskoka years ago to clear a plot of ground on which to make a living. As the land is specially adapted to the growing of roots he has gone into that line extensively. Particular attention has been given to potato growing and he has originated some new varieties. His success is due in a great measure to the care given to the selection of seed. His method of storing is inexpensive, and the potatoes always come out in fine condition in the spring.

"When digging my potatoes," remarked Mr. Naismith, "I always select those specimens which come near to my ideal for size and shape. These are kept for seed the following spring. This is the best and surest way of raising the standard.

"The potatoes are always stored in pits, or, perhaps, better called dig-outs. By putting the pit in the south side of a bank, about 25 bags in a pit, very little covering is needed. I put up a frame work to keep the dirt away from the potatoes. The pit is filled to within about one foot of the ceiling. Then six inches of hay or straw is put on to take up what moisture comes from the potatoes. The six inches of straw and six inches of air space along with a foot of earth prevents any injury from frost. I have always used this storage and have first-class seed in the spring. The potatoes never sprout and remain perfectly solid."

Cauliflowers Do Not Keep

THE cauliflower, though commonly grown in Canada, is not usually stored with success. Though belonging to the same class of plants as the cabbage, it is very much less hardy and is very sensitive to adverse conditions. The crop ripens very irregularly and frequently a large percentage remains immature when frosts come.

Some growers recommend digging up the plants and putting them in cold frames until they mature. This, however, means much work and few growers care to go to the trouble. In ordinary storage mature heads do not keep longer than Christmas, and in most cases those that are not disposed of before then are lost.

"I stored cauliflower only once to make any profit," said Mr. Jas. Dandridge, of Humber Bay, to The Horticulturist a short time ago. "That time they were pulled before frosts came and stored in a long pit. I dug a trench about 18 inches wide and

deep enough to stand the cauliflowers on end. In this trench the cauliflowers were placed heads upward as tightly as they could be packed. Cross pieces were put over the top and a light covering of boards put on until frosts came. As soon as the cold weather set in a covering of coarse manure was added.

"If they are pulled about November 1 and special care given they may be held until about Christmas, but a slight frost damages them and rot soon sets in. It is not advisable to try storing many. They should be sold before winter sets in if possible."

Fall Work in the Garden

MOST gardeners and fruit growers have general work completed by the early part of November, but there are always a few days after that time when much can be done to make less work and better conditions for the following season. No diseased leaves or roots of plants should be left on the garden to carry the diseases over for the succeeding season. Rubbish of any kind on the garden or along fences or buildings near by serve as desirable hiding places for insects during winter. Therefore, clean up before snow comes.

The market gardener who has to start many plants in hot beds should make full preparation for early spring work now. The hot beds and cold frames can be left in such shape that very little time is lost in getting the seeds or plants into their places at the proper season. The garden should be fall plowed and left to the mellowing influences of the weather during the winter months.

"I always plow in the fall if I can find time," remarked Mr. Jas. Dandridge to The Horticulturist. "There are many reasons for doing this. Cabbage leaves, carrot tops, and all such vegetable matter are turned under and incorporated with the soil to act as manure the following spring. Weeds, too, which come late in the season are destroyed. Besides, it puts the land in better condition for the spring work. When plowed again after the warm weather has come it makes a nice mellow seed bed for garden crops."

Results From Fertilizers

"I HAVE been using commercial fertilizers for 20 years." said Mr. Earl Spencer, of Picton, to a member of The Horticulturist staff who visited his place, "and I find that four times out of five the best crop is harvested from the soil which has received the most fertilizer. I used to use compost in celery trenches, but one season ran out of it and used another fertilizer. It has been a good thing for me that I was forced to do this.

"I can get as good or better results by giving a liberal coat of manure in the fall and working it in well and then applying some commercial fertilizer in the spring. It entails far less labor. Nitrate of soda gives big returns, but it must be applied by an experienced hand and only to the soil. If any of it touches the plant the foliage is burned. This season I destroyed a patch of melons by its use. Another objection to its use is that its effects are not noticeable after about three weeks. Other fertilizers made up of different ingredients last for three years or more, but the best returns are found the first season.

"From my experience I recommend the use of some fertilizer with small fruits and vegetables, and I have found that the best is the cheapest in the end."

A garden crop should be cultivated whether it has weeds or not.—(W. A. Best, Picton, Ont.

I thoroughly enjoy reading The Canadian Horticulturist.—(Norman Gill, Berlin, N. H.

The Canadian Horticulturist.

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January: otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

FREE TRADE OR AN EQUAL TARIFF.

The vegetable growers have decided that their plea before the tariff commission will be free trade or an equal tariff. In deciding to ask for an increase in the duty on only those vegetables that are the most largely produced in Canada and for only such an advance as will protect the Canadian grower without preventing the importation of such vegetables the officers of the Ontario Vegetable Growers' Association have acted wisely.

Many growers favored an increase in the duty on such vegetables as asparagus and melons. While an increase in the duty would be of great assistance to some producers the number is so limited while the consumption of such vegetables is so general strong opposition to such an increase would be aroused. This opposition would weaken the whole case of the growers and might result in their failing to gain an increase in the duty on the more important vegetables such as cabbages, cucumbers, tomatoes, etc.

The cry of the growers for free trade or an equal tariff is a just one and should strike the public and the commission as such. The people of the United States are devoting more and more attention to the matter of free trade with Canada. In the demands of the vegetable growers they can find no reason for further reprisals on their part. This move of the vegetable growers is really in the direction of ultimate free trade.

THE HORTICULTURAL EXHIBITION.

In the Ontario Horticultural Exhibition the fruit, flower and vegetable growers of the province have a great opportunity. No better means of advertising the horticultural resources of Ontario than this exhibition could be devised and with proper management it should result in an increased demand for these products. The educational features, also, are of great importance.

This year four conventions will be held in connection with the exhibition. For these conventions several of the most noted speakers on the continent have been secured. Arrangements have been made for thorough discussions of the various subjects dealt with and nothing but good can result. With the prestige gained from last year's show and the benefit of having Massey Hall for this year's effort the exhibition this month should prove a credit to the province. It will mean dollars in the pockets of those fruit, flower and vegetable growers who are able to attend.

SUCCESSFUL COOPERATION.

The success which this year has attended the work of the various cooperative fruit growers' associations in Ontario is most gratifying. The old associations at Chatham, Forest, Walkerton and other points have disposed of their apples in bulk at thoroughly satisfactory prices as have also the two new associations at Oakville and Thornbury. In most cases the apples have been purchased by British importers. In this way the growers who belong to the associations have saved the commissions of the dealers on this side who buy most of the crops.

The number of British commission firms which each year send representatives to Canada to contract for fruit is rapidly increasing. These men are glad to have the opportunity to purchase in bulk which the associations afford. Were there more associations in Canada it would soon be possible for most of our apples to be forwarded direct from the storage house of the associations to the importers and possibly to the retailers in Great Britain. This would mean a great saving to the grower and better satisfaction on the part of the purchaser. The natural growth of the cooperative movement is in the line of an increase in the number of these associations.

I consider The Horticulturist a vastly improved paper and feel sure that it will do much towards bringing the industry of fruit growing before the public.—(R. F. Robinson, St. Catharines, Ont.

ANALYSIS OF CANNED GOODS

In the laboratory of the Provincial Board of Health for Ontario an examination was made of the various canned vegetables, fruits and jams put up in the province for the purpose of finding out whether poisonous metals are present, whether adulterants or preservatives are used in their preparation and whether there is any reason for the prevalent opinion that the use of canned goods is injurious to health. The results are given in the annual report recently submitted to the legislature.

Peas from four factories were examined. Traces of copper were found in only one sample. Four showed traces of zinc. No adulterants were found, but starch was used in two cases to thicken the menstruum, with what object could not be determined, as the pasty mass was not inviting in appearance and did not improve the flavor. Three specimens contained cane sugar, five dextrose and one common salt. Sugar and salt improve the flavor of the peas. One canner had evidently sprouted his peas, making them very sweet and tender and increasing the bulk so that only three-fourths as many were required to fill a can.

Four specimens of tomatoes from as many canneries showed traces of copper and three showed zinc, but not enough to be harmful. The juice was very acid, but no tin was found as expected. Evidently nothing but salt had been added to the contents.

Three cans of corn from three different canneries showed an absence of poisonous metals, except one, in which there were traces of zinc. The cans were quite discolored, and one was so rusted that particles of metal adhered to the corn.

All the canned raspberries were of poor appearance, especially the white varieties, which had been treated with a purple dye. Three showed traces of zinc and two of tin. All were acid and had been preserved with cane sugar.

Three specimens of strawberries looked well and were of fine flavor. No coloring had been added. Traces of zinc were found in three and tin in two.

Two cans of plums looked well and were of good flavor. Both showed traces of tin. They were more acid than the raspberries or strawberries. Although enough specimens were not examined to draw any general conclusions nothing out of the way was found in any of the canned fruits.

The jams were all made up, a filler, probably apple, having been used. Many cans, labelled "true fruit," "absolutely pure," etc., contained very little real fruit, the balance being filler, coloring, flavoring and sugar. They were all of the ten cents a jar variety.

Salicylic acid as a preservative was not found, nor gelatin which might be used for thickening. Cane sugar was used throughout, though glucose may have been added. The coloring matter was apparently of the aniline dye variety.

Bulletins and Reports

Bulletin No. 101 of the Maryland Agricultural Experiment Station, gives the life histories and remedies for common injurious insect pests of that state. The woolly aphis, the round headed borer, the San Jose scale and many others are treated in full. Many illustrations show the different stages of the insects and the work they do. Several pages are also devoted to beneficial insects and insecticides.

A report of the forty-first annual meeting of the Nova Scotia Fruit Growers' Association, a copy of which has reached this office, contains many instructive addresses and discussions.

The seventeenth annual report of the Hatch Experiment Station, of Massachusetts, contains much that is of interest to fruit growers. Experiments with apple pomace show that it is practically equal to corn silage in feeding value pound for pound. A series of experiments and special studies in pruning is being carried on. Peach trees left unpruned for nine years are less thrifty than those pruned. Heading back, summer pruning and pruning to renew frozen trees are each being tested, and definite information will be forthcoming in an early report. In pruning to renew frozen trees the result so far shows that a greater percentage of the trees moderately pruned are in better condition than those not pruned or those heavily pruned.

Like good wine The Horticulturist acquires quality with age.—(Auguste Dupuis, Villiage des Aulnaise, Que.

Should Have a Certificate

A FRUIT GROWER.

While at the St. Louis exposition I noted that Canada made a very fine display of fruits, Ontario's apples for export winning in the first class. Canada was only awarded one grand prize for its installation and one grand prize for the collective exhibit of fruits. Not the least mention was made of the growers who sent the fruits. This is not very encouraging. The commissioners refused to make entries for provinces, horticultural societies, or growers. They said that it was a Dominion not a provincial exhibition, and one even said, were he pressed to act otherwise, he would resign his position.

Shall the fruit growers of Canada unite to force the federal authorities to have their merit recognized at future international exhibitions? The subject should be discussed by fruit growers' associations. Our industry deserves as much advertisement as others and even more, considering all the difficulties caused by climate, insects and diseases. Every state in the union received hundreds of prizes. Entries had been made for each fruit grower exhibiting fruits. Compare our position with theirs. It is humiliating for us. It does not repay the trouble of the careful selection of fruit sent to St. Louis.

I think a great deal of The Canadian Horticulturist and would not like to be without it.—(W. M. Turnbull, Galt.

LINES OF WORK FOR HORTICULTURAL SOCIETIES

The matter of spending the society funds to best advantage requires considerable attention by the executive committees of the different horticultural societies. The best hints can be obtained by reading the reports from the most successful societies. The secretaries of many societies have sent The Horticulturist their views as to what work is liable to result in most good to the members and to the citizens. The distribution of seeds, plants and bulbs is recommended by all. All advise sending some horticultural paper to the members, and all except one prefer The Horticulturist. Garden and lawn competitions, flower shows, addresses by authorities on suitable and seasonable topics, and other similar lines of work are taken up by different societies.

The work done by the Deseronto society, and outlined and illustrated on pages 432 and 433 is worthy of emulation. The Stratford society has become famous for its annual exhibition. Guelph, Simcoe and a number of others have made excellent progress by working through the school children and in this way getting the parents interested.

In different societies different methods must be adopted. The directors of the society should study what is most needed in their town and then decide what is the best and most satisfactory means of obtaining that need. If the lawns and front gardens are in poor shape, lawn competitions should give good results. If few flowers are grown, the distribution of seeds and flower shows might be most desirable. In most cases, however, energetic societies can manage to combine two or more features in one season.

In the past the good work of some societies has been detracted from by having fruit and vegetables shown with the flowers. In these cases trouble has been caused through the fruit and vegetable exhibitors having scoured the country to secure a collection of the best that could be found in order to win the prize. When prizes are not given the exhibitors are not encouraged to show crops grown by others, but many reports say that where money prizes are not given the same enthusiasm is not displayed. In some cases the absence of prizes has caused a dearth of exhibitors.

The secretary of a society in western Ontario which has been doing fine work for eight or nine years writes: "We hold a two-day exhibition of plants, cut flowers, fruit and vegetables each fall, at which premiums are awarded as stated in the prize list which is published in April or May. Competitions in gardens, in which the decorative effect from the street is made a leading feature, are held. and prizes are given for lawns from which fences have been removed, and for boulevards. Besides, each member receives seeds or bulbs, or both, with a request to exhibit flowers from them at next year's exhibition.

"These flowers are called for in the prize list and premiums are awarded. This year we are giving sweet pea seeds in six varieties and a parcel of mixed flowering tulips. The peas will appear in next year's prize list, and the tulips are a new departure that we expect will be appreciated. We also have had addresses on horticultural subjects.

"No charge is made by the society for the competition in gardens or lawns. Admission to the lectures is free and competitions are open to citizens. The exhibition has resulted in the most good, but all combined have helped to maintain a good, strong society."

A Grand Old Man.

Much of the success of many of the horticultural societies of Ontario, and incidently of The Canadian Horticulturist, is due to the untiring efforts of a few lovers of the beautiful in horticulture who, in spite of advancing years inclement weather, lack of enthusiasm on the part of the general public (and sometimes on the part of their own directors), refuse to be discouraged, and as a result of whose efforts their societies do splendid work each year. One of these enthusiasts is Mr. Joseph Barker, the secretary of the Kincardine Horticultural Society. Last spring The Horticulturist received a letter from Mr. Barker in which he stated that although 81 years of age he was tramping through the snow securing members for his society and readers for The Horticulturist. Such devotion to a society should encourage the secretaries of other societies, and explains, in part, why The Horticulturist is steadily increasing in influence. The illustration shows Mr. Barker. The Kincardine society has been in useful activity for about eight years. It was organized with only 15 members, at which time Mr. Barker was chosen secretary and treasurer. The society has 126 members, and Mr. Barker still serves as a most efficient officer in the same capacity as at the start. Mr. Barker has been the clerk of the Division Court at Kincardine for 40 years. He declares himself a lover of flowers from his earliest recollection.

Mr. R. Walter Brooks, secretary of Brantford society, says: "Our socitey, had it continued only the old annual exhibition for fruit, flowers and vegetables, would have ended in complete failure. This year we had a new departure. In the first place we gave our members The Canadian Horticulturist, which I think is almost a necessity. Secondly, we distributed to the school children about 6,000 packages of seeds, consisting of asters, verbena, phlox, scabiosa and salpiglossis. Thirdly, we had a very successful exhibition. Mr. Hunt, of the O. A. C., Guelph, said it was the most beautiful lot of asters he ever saw.

"There were about 500 entries, for which we gave 119 prizes in plants, consisting of araucarias, palms, ficus and ferns. Each exhibitor also received a hyacinth bulb. Everything in regard to the exhibition was free and there was great enthusiasm among parents and children. It is great encouragement for us as we have had a hard pull to get members this year, but I have great promise for next year. People want to know how so much can be done for nothing. The only answer is, avoid unnecessary expense and purchase plants for prizes in the best market."

WHAT THE SOCIETIES ARE DOING

The North York Horticultural Society held an exhibition at Newmarket in conjunction with the York County agricultural show. Twenty departments were well represented. Entries in flowers totalled 197, while in plants there were 56 competitors, and in the children's department 223. The show was a decided success.

FINE SHOW AT HESPELER.

Good work has been done during the summer by the horticultural society at Hespeler. In the spring over 200 geraniums and coleuses were distributed among the school children, with the understanding that an exhibition would be given in the fall for the best plants. Interesting and practical instructions regarding the care of the specimens were given at that time by Mr. Wm. Hunt, of the O. A. C., Guelph. In reporting the exhibition Secretary Davis says that the quality of the specimens at the exhibition showed that these instructions had been well followed. About $50 were given in prizes and the plants were judged by Messrs. Bryce and Lane, of Galt. Four long tables were filled with plants, cut flowers and fruit, while many exhibitors had to place their entries on the floor.

In the evening Dr. A. Ochs called on Mr. Geo. Pattinson, M.P.P., president of Preston so ciety, who declared the exhibition open, and pointed out some of the benefits of the society to the members and to the communnity.

The president, Mr. David Rife, presided at the evening program, when over 400 visitors enjoyed short addresses and vocal and instrumental music.

TORONTO'S OCTOBER MEETING.

A report from Mr. Chas. E. Chambers, secretary of Toronto Horticultural Society, states that an interesting meeting was held on October 3. "The fall care of plants" was taken up by Mr. E. F. Collins, and Mr. Herman Simmers gave an interesting and instructive address on "Bulb culture." A resolution was passed expressing sympathy with Mrs. Tyrrell and her family in the death of her husband, Mr. Edward Tyrrell, who was for many years associated with the society both as president and director.

PETERBORO'S COMPETITIONS.

The Peterboro society during the past season endeavored to encourage the beautifying of the home surroundings. Competitions were arranged for those who paid for all the labor, for those who paid for part of the labor, and for those who did all the work themselves. The taste and skill displayed has proved to be worthy of imitation and those who competed this year are benefactors to their fellow citizens. Barren and unsightly places have been changed into beautiful gardens. In awarding the prizes the judges did not place those which were most extensive first. Natural conditions were taken into consideration and awards were made according to the skill shown in working under adverse circumstances and producing good effects. The prizes were awarded as follows: Class I, all done with paid labor: A. L. Davis, 1, Hon. J. R. Stratton, 2; Mrs. Wm. Hamilton, 3. Class II, partly home and partly paid labor: Adam Hall, 1; Mrs. Kilgour, 2; Thos. Tucker, 3. Class III, all home work: Mrs. Thorndyke, 1; George Elliott, 2; James Stevenson, 3.

The energetic directors are planning for good work next season and have distributed 8,000 Dutch bulbs for fall planting and 7,000 tulips among the members of the society.

The Smith's Falls Horticultural Society owes its origin and successful existence largely to the energy and work of Dr. J. S. McCallum, who has filled the position of president since the formation of the society, nine years ago. The Doctor is a many-sided man, and is chairman of the town's finance committee, and has served many years on the board of education, part of the time as chairman. The society has a membership of over 100 of the most intelligent people of the community, and is doing a good work. Some years ago the society induced the corporation of Smith's Falls to lease from the Dominion government a few acres of rough, broken land along the Rideau canal. This has been reclaimed, filled and made into a lawn, with shrubs, flowers, etc., furnishing a good object lesson in horticulture and an agreeable breathing place in summer for the citizens.

DR. J. S. McCALLUM.

Is a Good Work.—To my mind, one of the best things any horticultural society can do is to get in touch with the principal of the public school in the town or district, and arrange with him for a distribution of plants among the school children, thereby getting the young people interested in flowers, etc. This is one of the best ways of bringing to the front the finer and better feelings in a person; the same applies to adults. The more a person studies flowers, etc., the more refined and considerate that person becomes.—(R. Davis, Sec. Hespeler Horticultural Soc.

Exporting Apples.—We are very often likely to taste an apple and say that is a good variety. It would take thousands of dollars to put some of our varieties on the market. I can mention a dozen varieties that are better than those we are placing on the English market, but it would take tens of thousands of dollars to place these varieties there. Shipping qualities should come first, then the keeping qualities, then the appearance and finally this last point that of its taste.—(A. McNeill, Ottawa, before Nova Scotia Fruit Growers' Association.

On one of the front pages of this number the Dominion Government officials who used the power sprayer furnished by The Spramotor Company, of London, Ont., during the past season have endorsed this power sprayer. The machine was operated in Nova Scotia by Mr. G. H. Vroom in demonstration spraying. Not a day's work was lost and there were no complaints on account of want of power.

THE ONTARIO HORTICULTURAL EXHIBITION

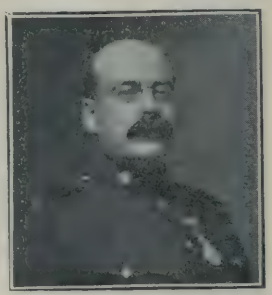
Final preparations for the Ontario Horticultural Exhibition which will be held in Massey Hall, Toronto, November 14-18, have practically been completed. Everything indicates that this year's exhibition will be much ahead of the one held last year, in the number and quality of the exhibits, as well as in the attendance. The prize lists have been increased, and this year there will be an exhibit of vegetables in addition to the fruit, flowers and honey.

Massey Hall, where the exhibition is to be held, lends itself admirably to decorative effects. A committee has been at work for some time planning the arrangement of the exhibits, with the result that the hall should present a very attractive appearance at the time of the show. Exhibits of flowers will be made upstairs and down, while the commercial exhibits will be shown in the basement. There will be the same special features there were last year, including cooking demonstrations by members of the Women's Institutes, fruit packing demonstrations by the Dominion Department of Agriculture, special exhibits by the Ontario Fruit Experiment Stations, and by the Central Experimental Farm at Ottawa, a special exhibit by the Guelph Agricultural College, and other features of this nature.

One of the pleasing parts of the floral section will be a competition for the best decorated dinner table. Some of the exhibitors purpose making a great display of cut glass, silver, china, etc., and it is anticipated the value of these exhibits will amount to thousands of dollars. In the fruit department, one of the most interesting features will be the exhibits by the cooperative fruit associations throughout the province. An evidence of the great interest taken in the show is afforded by the fact that nine county councils have made special grants to encourage exhibitors from their counties. All the fruit shown at Simcoe will be exhibited at the Toronto Exhibition.

As was the case last year, a special feature of the exhibition will be the various conventions, four of which will be held. These include the convention of the Ontario Fruit Growers' Association, which will take place Tuesday, Wednesday, Thursday; the first convention of the Ontario Vegetable Growers' Association, which will be held Thursday and Friday, and the convention of representatives from the horticultural societies in the province, which will be held Friday. At this latter convention the formation of a provincial horticultural association will be considered.

The main features of the fruit growers' program include a directors' meeting, Tuesday afternoon, a public meeting Tuesday evening, at which the Hon. Nelson Monteith, Minister of Agriculture, the Hon. Sydney Fisher, Dominion Minister of Agriculture, and A. M. Brown, of Wyoming, Delaware, will be the principal speakers. On Wednesday morning the president's annual address will be given, after which general business will be disposed of. In the afternoon the report of the New Fruits Committee will be considered. Mr. Harold Jones, of Maitland, will speak on "Selection of Sites for Orchards." Mr. G. C. Caston, of Craighurst, and Mr. W. T. Macoun, of Ottawa, will speak on "The Effect of Manuring on Hardiness for Northern Districts;" Mr. J. G. Mitchell will speak on "Plums," and an address will be given by Mr. L. Woolverton. Wednesday evening the Transportation Committee will present its report and Mr. A. M. Brown, of Delaware, will speak. The meeting Thursday morning will be devoted to the consideration of matters that will come before the Dominion conference of fruit growers. At the afternoon session Prof. F. T. Shutt, M.A., will speak on "Fertilizers for Orchard Crops," and Mr. Robt. Thompson will give the result of the fruit shipments to Winnipeg.



One of the most enthusiastic workers in Ontario in the cause of horticulture is Major H. J. Snelgrove, M. A., of Cobourg, who for ten years has been the secretary of the Coburg Horticultural Society. Major Snelgrove is the chairman of the committee appointed at the time of the Ontario Horticultural Exhibition last year, to consider the advisability of forming a provincial horticultural association and to suggest changes in the Act governing the horticultural societies of Ontario. This committee will present its report at the convention of delegates from horticultural societies which will be held Friday, November 17, at the time of the Ontario Horticultural Exhibition. It is men like Major Snelgrove who are making a success of the work of our horticultural societies.

The Vegetable Growers' Association will listen to addresses by Professors Lochhead, Harcourt and Zavitz, of Guelph; Mr. J. L. Hilborn, of Leamington; Mr. W. C. McCalla, of St. Catharines; Mr. John Hyatt, of Westlake; Mr. R. Brodie, of Westmount, a speaker representing the Canadian Canners' Association, and a speaker from the United States. The arrangement of the program has not been finally completed, but will be shortly.

The Horticultural Convention will be held on Friday. An effort is being made to induce the various horticultural societies to run excursions to Toronto. At the morning session the advisability of forming a provincial association will be discussed, and there will be addresses by officers of horticultural societies regarding the best methods of work. In the afternoon the principal speakers will be Mr. Wm. Hunt, of Guelph, and Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa.

Useful Information.—The lover of beautiful gardens and those who appreciate fine house plants should secure one of J. A. Simmer's latest seed catalogues. The annual autumn catalogue published this fall is replete with illustrations and gives a full description of pot plants for indoor culture, and desirable spring flowering bulbs. Hardy perennials and annuals which may be planted or sown in the fall, ornamental shrubs, and garden tools and requisites fill up the back pages. It is free and worth writing for.

VEGETABLE GROWERS AND THE TARIFF

The Ontario Vegetable Growers' Association has definitely decided to have a deputation wait on the tariff commission, when it sits in Toronto, to ask for a change in the tariff on vegetables. The case for the growers will be presented by the Hon. J. W. St. John, M. L. A., and by Mr. A. Campbell, M. P., who will be supported by such well known growers as Messrs. W. A. Emory, of Aldershot, president of the Ontario Vegetable Growers' Association; W. H. Bunting, of St. Catharines; A. McMeans, of Brantford; J. L. Hilborn, of Leamington; a representative of the Toronto Vegetable Growers' Association, and by other leading growers.

During the past six weeks the secretary of the Ontario association has been in communication with the Departments of Trade and Commerce in Canada and the United States with the object of ascertaining the position of both countries in regard to the tariff. The information gained has been laid before the branch vegetable growers' associations throughout Ontario, each of which has been asked to prepare a statement showing the changes its members would like to see made in the tariff. A meeting of a special committee, appointed by the president of the Ontario association, to consider the replies from the branch associations and to adopt a line of action before the tariff commission, was held recently in Hamilton. Those present included Messrs. W. A. Emory, of Aldershot, the president; E. J. Mahoney, of Hamilton; A. McMeans, of Brantford; F. F. Reeves, of Humber Bay, and the secretary of the Ontario association. The reports from the branch associations throughout the province showed that the growers feel they would have no cause for complaint were there free trade between the United States and Canada. As it is, however, the United States tariff is much higher on several lines of produce than is the Canadian tariff, which is felt to be a great injustice. It was decided, therefore, to make the cry of the association "Free trade or an equal tariff."

The need for an increased duty on several lines of vegetables, such as asparagus, green beans and watermelons, was realized, but owing to the fact that the number of growers producing these vegetables is limited, compared with the large number of people who consume such vegetables, the committee decided that it would be best to ask for an increase in the duty on only those vegetables which are the most largely produced in Canada and on which the United States competition is the most keenly felt. These include cabbages, cucumbers, celery, onions (dry), potatoes and tomatoes. The duty to be asked for on each of these vegetables was decided on. In no case will it be higher than the United States duty on similar lines of Canadian produce entering the States. In the case of cucumbers and tomatoes it was decided to ask for an ad valorem duty, but to stipulate that in no case will an invoice be accepted if marked, in the case of cucumbers, at less than 25 cents a dozen and in the case of tomatoes at one cent a pound.

It was decided not to ask for a duty which would prevent the importation of these vegetables into Canada, but which would be enough to prevent their being slaughtered on the Canadian markets at prices below the cost of production on this side of the line. The duty to be asked for will not be published until the tariff commission meets.

THE FRUIT SHIPMENTS TO WINNIPEG

The shipments of fruit to Winnipeg made by a few of the members of the St. Catharines Cold Storage Co. are still going forward at date of writing, October 25, at the rate of two cars per week, but they will end by the last of the month. The detailed statements of individual sales are not to hand for a number of the last cars, but the prices the fruit sold for are received twice a week by wire. The shippers have sifted down to about eight, who have stuck to their guns and have unbounded faith in the final result. Details will have to be held over until next month—but the shippers are unanimous in expressing the opinion that only cooperative associations can successfully hope to compete in the Winnipeg market.

Were the small shippers who forwarded fruit in the early cars without experience asked as to their opinion and the prices they received they would be very apt to say that the Winnipeg dealers are a set of thieves, but those who have stayed by the shipments throughout say unhesitatingly that the prices obtained are better on the whole than those paid on the Ontario markets, and so they should be, as more pains in packing are necessary, as well as in selecting the fruit. The point they feel the most satisfied over is often overlooked by the ordinary shipper, and that is that the 30 carloads of fruit were kept off our own markets and thus helped to stiffen prices instead of to depress the Ontario market.

At the beginning of the season two or three of the shippers commenced to wrap and box their pears. They have kept it up and are now sending from 100 to 250 boxes in each car. These boxes are packed equal to the best Californias, and what is more satisfactory the prices received have paid the shippers well for their time and trouble. The boxes used are the American and British Columbia pear boxes holding 40 or 42 pounds of pears net, or 45 to 47 pounds gross. This box can be packed much better and more easily than the half case. The cost of wrapping and paper costs about 10 cents per box. The Ontario cars are now being looked for on sale days in Winnipeg, and the class of buyers is improving. The Department of Agriculture at Ottawa has been placing thermographs in the majority of the cars, and the records, with two exceptions, have been very satisfactory. In the case of the ex-

ceptions the fruit was placed in the car warm on a day when the temperature outside was about 90 degrees. One carload was placed in storage over night and cooled to 42 degrees. The thermograph started at 45 degrees and dropped the first day to 42 degrees and remained there for 36 hours and then advanced to 50 degrees for nearly two days, and finally dropped to 42 degrees, where it remained until the car was opened. Very good time has been made by most of the cars, about five days being the record. Five cars of different makes were tested as refrigerators and five also as ventilators. Three or four men have accompanied these cars. The last to go (on October 18) was Albert Pay, whose car arrived in Winnipeg October 23, or in less than five days. When these men all return a meeting will be called at the Cold Storage Company's office and the railway men will be invited to attend, when these men will present their reports.

HINTS FROM A BRITISH IMPORTER

During October Mr. Joel Goodwin, one of Manchester's leading fruit dealers, visited Ontario and incidentally studied fruit conditions. "In Canada," said Mr. Goodwin to The Horticulturist, "only fruit that will ship well should be grown. Colored fruit sells better than uncolored. The Englishman wants something showy and will take a variety that is highly colored although the quality is not so good. It seems to be a hard matter to teach Canadians to pack properly. Many of the packages, when they reach Great Britain, appear to have been put up by persons who had never seen packing done properly. The proper way is to have some man who understands packing do it all. There is no use trusting the average farmer to do it.

"The greatest satisfaction is given by the Canadian barreled fruit. The packing is done better, and boxed goods do not sell so well on our market. Two years ago when barrels were scarce in Canada and boxes were sent it was difficult to make sales. Many of the boxes were weak and spread enough to allow the fruit to become slack. Besides, barrels arrive in better condition, as their shape leaves space between them for ventilation during transport. Cold storage is necessary for the boxes and that entails extra expense.

"I usually get my supply of apples by consignment, but have had some sent direct from the growers. The dealers are better informed as to market conditions and understand the business better than the average producer. Selling fruit is a business distinct from growing, and as a rule the farmer is willing to sell at a paying price if he has no risk to run.

"Better steamship service is needed between Canadian ports and Manchester. Our merchants could handle 15,000 or 20,000 barrels a week if the steamers would bring them. We must have a weekly service, and if the Manchester lines cannot give it I may put on some steamers myself. The very best boats, fitted with cool chambers, are needed for the apple trade. The steamship companies claim that there is no money in carrying freight, but if the best boats were put on more trade would result and then it would pay."

More Cars Demanded

Owing to the great scarcity of cars for handling the late crop of tender fruits and the bulk of the apples, a meeting of the transportation committee of the Ontario Fruit Growers' Association was held in the Grand Union Hotel, Toronto, on October 16. Messrs. W. H. Bunting and Robt. Thompson, of St. Catharines; E. D. Smith, of Winona; W. L. Smith, H. W. Dawson and P. W. Hodgetts, secretary of the Fruit Growers' Association, discussed the situation. Great losses have resulted to several shippers. It was estimated that there would be 300,000 barrels awaiting shipment within three weeks, and owing to the millers asking for cars to bring wheat from the west for Ontario mills the shortage in rolling stock was likely to become serious.

The committee considered that since fruit was a perishable product and apple shippers were paying a higher rate for their shipments special efforts should be made to aid the fruit men at this critical time. It was decided to ask the Railway Commission to compel the railways to give preference to the shipments of apples until the congestion has been relieved. A petition to this effect has been sent to the commission.

Packed When Green

A. McNEILL, CHIEF, FRUIT DIVISION, OTTAWA.

Mr. J. J. Philp, Dominion Fruit Inspector, Winnipeg, notes the especially large quantity of Fameuse apples arriving in bad condition, and attributes this to the fact that these apples have been packed on the green or somewhat immature side. A large quantity of fruit has arrived at its destination in a wasty condition this year as the result of its being shipped while yet immature.

The idea that fruit must be packed green to ship and keep well is so strongly intrenched in the public mind that it will take much time and patient teaching to eradicate this erroneous impression. Scientific experiments, undertaken for the purpose by the Department of Agriculture at Washington, D. C., have shown that to keep and ship well, fruit must be just mature but not over ripe. Green fruit spoils as readily as over ripe fruit. Mr. Philp's reference was specially to Snow apples. The Fruit Division, Ottawa, gives it as the experience of its inspectors that these apples cannot be shipped profitably in barrels. They must be classed as a tender fruit, and the box is the largest package that should be used for them.

Results of the Windstorm

The worst storm that has struck Ontario orchards for a great number of years occurred during the third week of October. Fruit Inspector Carey, of Toronto, who recently visited Northumberland county, states that the growers there claim that 50 per cent. of the fruit on unpicked trees had been blown down. Mr. Carey estimated that 30 to 40 per cent. had fallen. The ground was literally covered with excellent fruits and gangs of pickers gathered them like potatoes so that they would not be further damaged while the remainder of the crop was being harvested.

All this fallen fruit will be rushed on the market or put in storage and in either case the result will be serious if the fruit men do not act with prudence. Windfalls do not give satisfaction in store, and if rushed on the market a glut will be caused. Some fruit which fell on soft ground was not seriously damaged and appears all right, but the consumer is dissatisfied when a bruise is found. "This storm and the effects which are likely to follow," remarked Mr. Carey, "are the only drawbacks to a prosperous year for fruit growers."

Mr. Carey advises that special care be taken in selecting apples that are to be shipped. A few of the least damaged can be shipped with fair success, but the badly bruised fruit should be sent to the evaporator. Naturally, the grower is anxious to send all he can at higher prices, irrespective of the damage to the fruit industry, but in this case he must act prudently.

Fraudulent Packing

A number of cases of fraudulent packing have been reported from different sections of Ontario. In a recent interview with Dominion Fruit Inspector Carey, The Horticulturist learned that cases were under consideration at St. Catharines, Aldershot, Oakville, Meaford and other places. Several growers have been prosecuted and fines imposed on the transgressors. Mr. Carey favors lenient treatment but claims that the educational stage is past and those fruit growers who persist in violating the law can expect little consideration in future. They have been given time to acquaint themselves with the requirements and heavy fines will be imposed.

A marked improvement in packing is reported, as the majority of growers are cooperating to bring the desired results. There are, however, some unscrupulous packers who have not the best interests of the fruit industry at heart. The principal defects have been over facing and wrong marking. In several cases XX fruit has been marked XXX. "We must," said Mr. Carey, "have honest packing and grading up to the standard."

Fruit Inspector Carey states that fully 200,000 barrels of apples will go into storage in Northumberland county. These will consist chiefly of Spys, Ben Davis, Baldwins and Russets.

Cool Fruit Before Packing

A. McNEILL, CHIEF OF THE FRUIT DIVISION, OTTAWA.

The Dominion fruit inspectors at Montreal draw attention to a most serious source of loss to apple shippers. When inspecting fruit under the Fruit Marks Act they also test it with a thermometer for the purpose of arriving at some knowledge of its condition. There are numerous cases of the fruit standing at 75 to 78 degrees in the barrel when the outside temperature is between 50 and 60 degrees. Such packages going into ordinary storage are almost certain to arrive in the Old Country in bad condition.

It mends matters somewhat to place them in cold storage, but even cold storage cannot restore to proper condition fruit that has been some days packed in a barrel at this temperature. The heat developed by the fermentation of the apples themselves would almost counterbalance the effect of the refrigerator plant, so that it is doubtful whether the centre of the barrel would be materially affected before the apples reached the English market. Our packers must learn that the apples should be put in the barrels cold, and that a barrel of apples, even in the cold storage chamber, cannot be cooled thoroughly in less than a week or 10 days. Hence, the necessity of cooling them before they are placed in the barrel.

Items of Interest

The British Columbia Fruit Growers' Association has decided to make a display of fruit again this year at the annual Royal Horticultural Exhibition which opens in London, Eng., on December 5. Over 600 boxes of apples and about 100 boxes of pears are being selected from the crop in the different sections of the province. The British Columbia exhibit was awarded two gold medals last year.

The largest cargo of apples ever exported from Montreal left on October 6 on the Allan liner, Bavarian. This record load consisted of 28,560 barrels and 765 boxes. The inspector from the Department of Agriculture had a busy time looking after proper marking and taking the temperatures. Each package was clearly marked "Canadian apples."

Reports from different parts of Canada tell of freaks in fruit trees and bushes this season. In Mr. W. G. Watson's orchard, at Dixie, a bunch of healthy blossoms was found within a few inches of mature fruit. In Dufferin county Mrs. Thos. Hinton, sr., of Black's Corners, picked well formed strawberries of splendid flavor in October. A second crop of raspberries matured on some bushes in Mr. Jos. Chantler's garden in Simcoe county. At Peterboro, Mr. Robt. Daly also picked ripe raspberries in mid-October.

The interests of the fruit industry are being looked after by Inspector Gifford, who laid charges against Messrs. Godfrey, Dyce and Ellis, of Meaford, for violation of Section 6 of

the Fruit Marks Act. Mr. McNeill, Chief of the Fruit Division, Ottawa, in reporting that these men were convicted, says that present demand points to bright prospects for a large and permanent trade for fruit that can be shipped through Georgian Bay ports to the Northwest and that it is not in the interests of the fruit growers to have this trade jeopardized by carelessness or fraud on the part of a few packers.

Fruit Notes

It has not been definitely decided when the Minister of Agriculture will call the Dominion Conference of Fruit Growers, but presumably it will be some time in February or early in March. The delegates will be called from the different provinces in about the following proportions: Prince Edward Island, 2; Nova Scotia, 4; New Brunswick, 2; Quebec, 4; Ontario, 9; Manitoba, 1; Saskatchewan, 1; Alberta, 1; British Columbia, 4. In addition, it is probable that there will be one fruit expert representing the provincial government and provinces interested. The secretaries of the different provincial fruit growers' associations have been notified, so that should there be any subjects on which they would like to instruct delegates they will have an opportunity of doing so at their annual meetings.

Mr. Maxwell Smith, Dominion Fruit Inspector for the Province of British Columbia, writes that a very large proportion of the apples arriving from southern points up to date this season have been condemned for codling moth. Scarcely a year passes but Ontario shippers are induced to send apples to British Columbia, and it very seldom happens that these apples successfully pass the pest inspectors, which, of course, entails a serious loss upon the shippers. It is necessary, to enter British Columbia, that the fruit be absolutely free from codling moth, a condition that can scarcely be met in ordinary years by Ontario fruit.

Record time was made in the shipment of fruit made recently by the St. Catharines Forwarding Co., which Mr. P. J. Carey accompanied to Winnipeg. The trip from St. Catharines to Winnipeg was made in four days and 20 hours. The shipment consisted of pears, peaches, grapes, tomatoes and a few apples. Mr. Carey reports that everything was in good condition on arrival and encouraging sales were made. It was the first shipment of peaches for the season. They were somewhat immature but sold readily at $1.25 a case. With care and fair transportation facilities, it is claimed the most tender fruits can be put on the Winnipeg market and sold at a profit in large quantities. Defective packing and improper selection are said to be the chief causes of the slow progress in bringing the merits of Ontario fruits to the front.

The blueberry crop in the neighborhood of Kenora (Rat Portage) amounted this year to about 155 tons, the price varying from 7 to 10 cents per pound.—(A. McNeill, Fruit Division, Ottawa.

Mrs. W. Keith, of Newmarket, who recently purchased bulbs to the value of $1.12 from J. A. Simmers, of Toronto, through seeing Mr. Simmers' advertisement in The Horticulturist, has been sent a handsome premium by The Horticulturist. We give premiums to all our readers who purchase from advertisers.

The Tomato Situation

The Grantham vegetable growers held a special meeting on October 14 to take action on the tomato situation for the season of 1906, as some of the factories try to secure contracts when paying the growers off at the end of the season. A large number of growers were present.

The results of this season's work were considered and all were unanimous in agreeing to stick together. A committee was appointed to keep in touch with the situation and be prepared to take any needed action.

A Secret of High Prices

E. H. WARTMAN, DOMINION FRUIT INSPECTOR, MONTREAL.

Canadian fruit growers should know a few facts relating to the transportation of California plums via Montreal to Glasgow. I had the pleasure of inspecting five standard three-box crates California Tragedy plums out of a car of 1,130 crates. Each plum was well wrapped in soft paper, well graded as to size and quality, three plums deep. After inspecting these five crates to the bottom I decided they were in perfect condition.

News of this kind to shippers serves as a warning to those who have the very responsible position of looking after the temperatures of these chambers aboard ocean liners. A shipment went forward last season and landed in such perfect condition that the fruit demanded 10d. or 20 cents per pound over the counter. This fruit usually sells for one cent per pound or 60 cents per bushel in California. When we consider 20 cents per pound, or $12 per bushel on the other side, it is evident some one must be reaping a great harvest. But the little secret should be better known among our growers. The fruit is picked at the proper time and most beautifully wrapped and packed. It is placed in cool air and kept there to its journey's end. All this may seem a lot of trouble and expense, but it is a most perfect system, and he who practices it will be well remunerated.

I like boxes very much, and think them a better package for early apples than barrels. I think too that the best winter apples should sell to better advantage in boxes, but the old country trade seems prejudiced in favor of barrels. —(R. A. Thomas, Barrie, Ont.

I enjoy The Horticulturist very much and do not wish to discontinue it—(Adam Brown, Annan, Ont.

COMMISSION SALES IN GREAT BRITAIN

A CANADIAN IN ENGLAND.

While I do not believe there is as much fraud connected with the sale of Canadian apples in British markets as has, sometimes, been charged, still I believe there is considerable fraud. Openings for such are evident, even though many firms are quite too honorable to take advantage of them.

I advise Canadian growers to have a Canadian, preferably one of themselves, to represent them in England. Such a man might confine his attentions to Liverpool and endeavor to certify the correctness of Liverpool returns, or he might have a roving commission, with authority to see books of any brokers whose returns are questioned by the shippers. Brokers would, no doubt, be quite willing to agree in advance that their books should be open for inspection by any accredited representative of the shippers. The idea is capable of elaboration in many ways. As far as engaging a man over here to influence the bulk of the sales is concerned, I cannot see any necessity for outlays on the part of Canadian growers for such a purpose. If the fruit is carefully put up on the cooperative principle, so that large lots of any given variety and grade will turn out uniformly, barrel after barrel, the demand will not only be easily found, but is already waiting.

To put it briefly, the goods will sell themselves if they are right, and what the Ontario grower wants is the assurance that he will get all the fruit produces, less actual and necessary expenses for freight, dues, and commission. It must not be difficult for the growers to get transportation on extremely easy terms for one or two representatives, whose expenses for say one month, November 15 to December 15, would be a very small matter in comparison with the sum that would be required to keep a man employed over here by the year.

SPRAYING COMPETITION CHALLENGE

W. H. BRAND, GRIMSBY, ONT.

In your issue for October I find some representations which, in the interests of both the purchasing public and ourselves, require correction. They are found under the headings "Spraying machines at Toronto," "Little Giant Sprayer," and in the advertisement of their manufacturers. They are: "Besides being the cheapest machine on the market, it is also the only one that automatically sprays two rows of grapes as well as small fruits at the same time. These machines are now in perfect running order, having long since passed the experimental stage. Fruit growers may feel assured that they are obtaining the best when they purchase a Little Giant Sprayer. Mr. E. D. Smith is using one of their sprayers and does not possess one of the Spramotor machines. This sprayer is the most complete machine on the market. Unreliable agents tell you they sell a machine just as good, but don't be deceived; buy a Little Giant which has stood the test on many large fruit farms during the past summer and has never been known to disappoint. The Little Giant is a Canadian made machine that many try to imitate but have not succeeded," etc.

Now, as Wallace Power Sprayers and myself appear to be directly included in these sweeping assertions, I deem it well within my right to draw attention to the positive facts and prevent the uninformed from being "deceived" by such statements and place them on the correct basis to judge which make of machine produces a correct spray, enough of it, holds it long enough to do thorough work at each stop, is the most economical in the use of mixtures, produces the most paying results, requires the least expenditure for help while in operation and would really be "the cheapest" for them to invest in.

A proper spray is one composed of very fine, mist-like atoms not coarse (like that commonly called a "Scotch mist"), and is one that will not drench the foliage to the dripping point when applied from nozzles passing by at a reasonable walk. If it be too coarse it will gather in drops and carry with it the very ingredients desired to deposit. The same thing results from directing even the finest spray too long in any one spot. In doing this it carries with it components such as Paris green, which is not perfectly soluble in water; blue vitriol, white arsenic, etc., as these remain in a very fine but heavy powder. A proper spray, properly applied, is no heavier than an ordinarily light dew on the foliage. To obtain this proper spray we require machines capable of generating very high pressures—as high as 200 pounds sometimes—and furnishing enough volume of spray to accomplish thorough and speedy work in whatever we are spraying. Not only so, but, as we sometimes find it absolutely necessary to halt at a tree in order to finish it thoroughly, or, on account of using extension rods have to make a stop at each tree, we must have a reserve force and extra room for the storage under that force of sufficient mixture to do the work required. In the most economical of power sprayers, this force is compressed air—a quantity which is free to all and only requires placing in proper shape to do many things other than apply the brakes on railway cars. This is the agent employed in Wallace machines, and in most of them it is got by power from the wheels or axles of the vehicle that carries the outfit as the horses (or horse) draws it along. Our pumps are made finely enough to compress air to 40 or45 pounds pressure without the use of liquid. After we get the required amount of air to do the work contemplated, we turn the suction on liquid and run up a pressure of 200 pounds if it is required. (Most people run between 70 and 160 pounds.) The length of time we can stand and spray depends on the size of the machine and the number of nozzles being used. The

way to judge which of these machines will best perform the work is to be governed by the verdicts of users of them, or those who see both makes in actual operation.

To decide which is the cheapest is to learn which is most capable of making the covering capacity of the mixtures the greatest, accomplishing the greatest amount of work in the shortest time (thus reducing expense for time of help and team) and with the smallest amount of help, and then take into account their original cost and make comparisons. When this has been done correctly the point of which produces the most paying results will have been met and decided.

First, let me inform every reader of this article that Wallace Power Sprayers are not in the same class as the Little Giant. They are strictly air compressors, and are the only machines of that class now being sold or extensively used in Canada or having a resident representative here. They are leaders, and are so far ahead of such combinations as the Little Giant that the latter will have a long lap to cover in catching up. I intend to use, as much as I can, Canadian made trucks and tanks in mounting the 4-wheelers, and to make here in Canada many of the attachments for their various uses. We furnish these in sufficient variety to enable our customers to spray most thoroughly two grape row sides "at the same time" (this has been done by some of them with my own make of grape spars on the "Standard" machines during the past season, and I am credited with having the best design extant. I intend to further improve it for next year's work), or two rows of anything else that grows in the bushy row form, or four rows and upward of strawberries, potatoes, tobacco, etc., or twelve feet and upward in width when spraying to kill mustard, etc., and tree spars, which make it possible for one man to handle both the levers and spar and thoroughly spray largest apple trees without halting from start to finish of each row in doing the work. All he requires is a boy to drive the team for him. We design our own fixtures and improve them as we find necessary or of use to our customers. We will also get up for them any special arrangement of nozzles their work demands, and we guarantee every machine.

The Little Giant has not, and never had anything worth our while to attempt to copy or "imitate." My opinion is that this boot is on the left foot. At some of the fairs at which both of us were present I found this man making very close examinations of our "Junior" and "Duplex" machines. As these machines and their various improvements are protected by patents I trust his rashness will not lead him into attempting to adopt some of our patterns. The demand for Wallace Power Sprayers is such that the company have had to buy more yard and store room and enlarge their factory to cover one acre more.

Regarding Mr. E. D. Smith, let me say that he not only possesses a Little Giant, but also a Spramotor and a Wallace "Standard." He uses the first named for nursery stock only, the Spramotor for vineyard work, and the "Standard" for all his heavy orchard work, of which he has a sufficient acreage to keep it steadily going during the spraying season. On receipt of request I will forward any of your readers a 20-inch circular on which will be found Mr. Smith's commendations of our machines and those of a number of others who own and use them here in Canada and some in the United States. On it, also, will be found a number of hard facts regarding our machines and other useful information along the same line. A postcard will bring it.

Regarding Toronto Fair. I happened to be a visitor there and saw other power sprayers than the Little Giant, and when I passed both exhibits the other exhibitors seemed to have "won more friends" by three times the number I saw around the latter. To a group of my acquaintances who interviewed the Little Giant man, he stated that a Mr. Orr said that he would give his present possessions in the line of sprayers for a Little Giant. My query is why he did not make the deal. Let us see. Mr. Orr and Mr. R. H. Dewar own both a Spramotor and a Wallace "Standard." (In my circular will be found an extract from their letter also.) Are we to infer that this man considered these machines too risky to venture his cash in? Here is Mr. Orr's reply to my questions regarding this: "It is utterly false. I made no such offer to any one; I am not quite so foolish. It is the veriest nonsense. It occurs to me that I met this man on the car one day and he gave me a glowing representation of the capabilities of his machine, the correctness of which I have yet to see verified. I may have said that I would give a good deal for a machine that would do all that he claimed for his, but I made no offer whatever. I have yet to be convinced regarding his machine." My own personal opinion leads me to view him as leaning too readily toward this style of talk. It is also strengthened by the fact that I personally overheard him making use of a statement in a manner calculated to make a most damaging impression regarding our machines, and my advice to him and the writer of the statements herein complained of is to comb down somewhat and be content with plain modest truth in regard to his representations of both his own and other makes of machines even if he does not wish to accord toward the latter the spirit of common fairness nor cares how he jeopardizes his own public reputation for veracity and the common self-respect possessed by all honorable dealers in so doing. In so far as I am personally concerned, his blusterations carry no weight nor cause me the least concern, because I am too well aware as to how much he knows about the whole spraying business, and how much he has yet to learn regarding it. I also estimate that the majority will very quickly learn the same things.

My object in dealing at all with this matter is as at first stated—I do not care to see the

uninformed "deceived." I will give this man an opportunity to demonstrate the correctness of his representations on or before November 15 at some place in the Winona vicinity to be agreed upon, he to name the date and invite (through the press) all who are interested in these machines or sprayers of any make for any rural purpose. He may cover the whole of Canada if he chooses. He may also have a committee of judges if he wishes, either two or five. He to name one or two and I will do likewise and these can select the other man.

Readers of The Horticulturist will then have other than the writings of the Little Giant man as authority on which is "the most complete sprayer on the market;" learn if "it has enough power;" possess from an actual demonstration the "proof of the superiority" of the machine which gives the evidence that it possesses it; learn whether it has or has not "long since passed the experimental stage;" see for themselves the "test" and judge whether or not they would be "obtaining the best when they purchase a Little Giant Sprayer," or whether all these are better embodied in Wallace machines. At the same time I would show them a cart-machine that will surprise them when they see its power and scope. I will also lend to any inquirer after information regarding spraying and spraying apparatus, my services, and will be impartial in giving any desired answers. I invite closest investigation of our system. Instead of giving only three names out of the "many" regarding the "sprayer which has stood the test on many large fruit farms" (? these are the only ones I can find), I will give a whole list of them regarding Wallace machines and get as many more, if wanted. We do not write our own testimonials, nor accept or publish any unless dictated by the individual whose authority is subscribed. How about the Little Giant? If my challenge is accepted please advise at earliest possible date, as I wish to plan to be on hand.—Advertisement.

Has a Spramotor Machine

In the October issue of The Horticulturist appeared a statement regarding the Little Giant sprayer, in which it was stated that Mr. E. D. Smith, of Winona, does not possess a Spramotor machine. We have since been informed by Messrs. Perkins & Paine, of Port Dover, that what they desired to have published in The Horticulturist was that Mr. E. D. Smith does not possess a power spramotor machine.

We are informed that Mr. Smith has both a hand and a horse-power Spramotor machines, purchased last season, and that these machines have been giving every satisfaction. We published the item in good faith and take pleasure in making this correction.

Cheap Offer of Surplus Bulbs

In order to quickly dispose of any bulbs left after filling our orders, we offer them to our patrons in the form of a Surprise Collection, worth at catalogue prices two or three times the price charged in this way. We shall make them up into generous assortments, well selected, and all of good, sound bulbs, but the **choice must be leftstrictly with us.** Customers will, however, be allowed to indicate a preference, and if the bulbs requested are still in stock, it will be complied with. These collections, which may be had for either House or Garden Culture, will not be filled before Nov. 5th, but orders will be booked at any time before that. No selection will be made for less than $1.00, but orders for any larger amount will be filled in the same liberal manner. We pay the postage. Much more liberal collections can be sent when ordered by express

70 SHRUBS -- 95 PERENNIALS

In our Fall Catalogue, we offer the above number of varieties, all hardy for planting at this season of the year. You will not find this list equalled by any firm in the Dominion. Don't put off planting any longer.

THE WEBSTER FLORAL COMPANY, LIMITED

FLORISTS, NURSERYMEN AND SEEDMEN. **HAMILTON, CANADA.**

Money Given Free to People who buy Goods from Advertisers in this Issue.
See Notice in Advertising Columns.

The Price of Fruit

L. WOOLVERTON, SEC'Y OF ONTARIO FRUIT STATIONS, GRIMSBY, ONT.

Supply and demand must always regulate the prices of fruits, providing the sale is regulated by business methods. We owe much to the commission man in the larger cities, for when we have an over production how else can we force quick sales? The fault has been in shipping on commission or auction, to small outside towns, in competition with the bulk of our own fruit going to the cities. In such places f. o. b. sales should always be made, otherwise the prices for our whole crop are lowered. Here is the secret of our recent failures, and nothing could be more foolish and unbusinesslike.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents in advance.

WANTED — SUBSCRIPTION CANVASSERS for The Canadian Horticulturist both in cities and in the fruit districts of Canada. Liberal commissions offered. Good men soon put on salary. Write The Canadian Horticulturist, Rooms 507-508, Manning Chambers, Toronto, Ont.

FOR SALE CHEAP—ONE OF THE CLEANEST and best equipped greenhouses in Toronto. Everything in splendid condition, carnations planted, excellent stock of ferns and general stock of plants, 10,000 feet of glass. Apply at once to F. C., care of The Canadian Horticulturist.

LANDSCAPE GARDENING

Parks, Cemeteries, Public and Private Pleasure Grounds made by . . . . . .

Chas. Ernest Woolverton, Landscape Gardener
GRIMSBY

Drawings made to a scale, so that any gardener may carry them out. Correspondence solicited.

Smooth, Rich Cheese

depends on the way the curd is salted.

The salt must be pure—like Windsor Cheese Salt.

The salt must dissolve slowly and evenly—like Windsor Cheese Salt.

The salt must not be carried off in the whey—but stay in the curd, like Windsor Cheese Salt.

The salt must help to preserve the cheese, and keep it smooth and rich — like Windsor Cheese Salt.

If you are not getting as good cheese as you should, would it not be a good idea to try

Windsor Cheese Salt.

IT PAYS

to grow good fruit, and every grower wants

To Have the Best

We carry a full line of the very best nursery stock,

Trees, Shrubs and Vines

Write for our beautiful catalogue, and select the varieties suited to your locality.

The Helderleigh Nurseries

E. D. SMITH, Winona, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

The Canadian Horticulturist

DECEMBER, 1905

VOLUME XXVIII NUMBER 12

THE ONTARIO HORTICULTURAL EXHIBITION

GREAT was the success of the second annual Ontario Horticultural Exhibition held in Massey Hall, Toronto, November 14-18. The total number of entries was more than double the number made last year, and the interest shown in the exhibition was much more marked. This exhibition promises to become an annual event of national importance and will be of great value in advancing the horticultural interests of the country.

The exhibits of fruit were more than twice as numerous as last year and the quality was much superior. It was the best exhibition of the kind ever held in Canada. The display of flowers was a revelation. While the number of entries was but little larger than last year, the character of the blooms was much superior. Experts pronounced it the finest exhibition of flowers ever seen in the Dominion and one of the best ever held on the continent. This year, for the first time, prizes were offered for vegetables, and the results were most gratifying. Over 300 entries were made and the excellent quality of the exhibits and the attractive manner in which they were displayed made this one of the best features. The apiarists maintained the high standard of the exhibition by a very fine display of honey. As a combined show it is doubtful if the exhibition has ever been surpassed by any other ever held on the continent. When it is remembered that this was only the second attempt the splendid success of the effort will be realized.

The exhibition was formally opened on the afternoon of the first day by Hon. Nelson Monteith, Minister of Agriculture, who showed clearly that he realizes the vast importance of the horticultural interests of the province and that he is anxious to promote them. Speeches were made by Mayor Urquhart, of Toronto; Mr. W. H. Bunting, of St. Catharines; Mr. A. N. Brown, of Wyoming, Del., and by one or two others.

Five conventions were held during the exhibition. Most of them were largely attended and all were important. They included the annual convention of the Ontario Fruit Growers' Association, the first annual convention of the Ontario Vegetable Growers' Association, a pomological convention, a gathering of representatives from the horticultural societies of the province, and the Bee Keepers' convention. Over 300 people holding standard railway certificates attended one or more of these meetings. This is an evidence of the interest taken in them.

GATE RECEIPTS SMALL.

In only one way was the exhibition disappointing. That was in the attendance of the citizens of Toronto. On this account the gate receipts were several hundred dollars less than it was hoped they would be and caused a deficit the directors have since had considerable difficulty in overcoming.

It is expected, however, that every dollar of expense connected with the exhibition will be paid in full without its being necessary for the management to appeal to the government for any further financial assistance. Plans are being laid, already, for a still larger and better exhibition next year, to which excursions will be run from all parts of the province. A full description of the recent exhibition and an outline of the proceedings at the various conventions is published in this issue.

SPECIAL FEATURES OF THE FRUIT EXHIBITS

THOSE who argue that apple growing in Ontario is on the wane had only to examine the fruit display to have their minds disabused of that thought. The general exhibit of fruit in quantity and quality was something of which every Canadian should feel proud. A marked improvement over last year's attempt was noted in every section, but in the commercial packages the greatest advancement was evidenced.

Mr. P. J. Carey, of Toronto, who judged the boxes and barrels, told The Horticulturist that the exhibit was fully three times as large as last year's. He also claimed that the demonstrations given by Mr. Boies, of British Columbia, in the different fruit sections had much to do with the improvement in packing. Last year not more than five per cent. of the exhibits were up to the mark, while this year fully 75 per cent. were in good shape. The chief defect was that the packages were slack. Some growers have not learned to adopt the special system, out of the 60 possible ways, that will give the proper fullness of package. So numerous were the entries and so close the competition it took the judges two days to complete the work.

The county exhibits added greatly to the appearance of the tables and proved valuable from an educational standpoint, while the work that can be accomplished, by forming local organizations, was evidenced by the displays from fruit growers' associations. These and the exhibits from the experiment stations were closely studied by those who intend setting out young fruit trees.

Perhaps the most surprising feature of the show was the specimens from the Central Experimental Farm, Ottawa. Mr. W. T. Macoun had 115 plates of apples and 20 of grapes. These showed the characteristics of the different sorts, nearly all of which are new or little known. The most promising of a collection of 16, all of Canadian origin, were McIntosh, Scarlet Pippin, Fameuse, Baxter, Canadian Baldwin and LaVictoire. Some Wealthy seedlings showed the variation that is common to seedlings. Crosses made by using McMahon White as female and Scott's Winter as male, also showed vast differences. Some resembled the female in appearance and the male in keeping qualities, while others retained the qualities of the female and acquired external appearances similar to the male. The object of these crosses is to get a hardy variety of good size and quality that will keep all winter.

Of the varieties extensively grown Mr. Macoun recommended Milwaukee, McIntosh and Pewaukee Russet, a new American seedling, as the most hardy for the Ottawa section. Bethel, too, has a good appearance, but is a shy bearer. Many new Russian seedlings show extreme hardiness, but they lack quality. The best are Sklianka, Winter Arabka and Bogdonoff.

To mature grapes in that northerly section the vines have to be laid down and covered with soil. Over 90 varieties matured large bunches of delicious fruit. Brighton,

Vergennes, Lindley and Herbert are among the best.

Useful information was given at the Women's Institute tent, by Misses Shuttleworth and Lillian Gray, in demonstrating the easier methods of putting up fruits. It was explained that there is no necessity for the busy housewife to stand over a hot stove, as almost every kind of fruit can be put up in cold water to advantage. Rhubarb, gooseberries, plums, currants and other fruits were easily done in this way, and may be used at any time during the winter. Tomatoes, when ripe, may be peeled and put in a sealer of cold water and the whole set in a kettle of cold water and heated but not boiled. When done in this way they are excellent for slicing at any time. Competition in jars of apples, strawberries, cherries, pears, apple jelly, etc., between the branches of the Women's Institutes, brought out a fine collection of preserved fruits.

The Ontario Agricultural College, of Guelph, had a collection of insect and fungous diseases, weeds, apples, etc., in charge of Messrs. T. D. Jarvis, B.S.A., of the entomological department, and H. S. Peart, B. S.A., of the horticultural department. Mr. Jarvis had specimens of the common insects and fungi that attack our orchard and garden crops, nicely mounted or bottled; while Mr. Peart had supervision over a collection of 56 varieties of apples from the young orchard at the college.

The Lake Huron Experiment Station was represented by beautifully preserved specimens of berries, currants, and cherries. A special display was made of such varieties of apples as Spy, N. W. Greening, Ribston Pippin, Wealthy, Pewaukee, Grimes' Golden, Russet and Tallman Sweet which are adapted to that section. An exhibit of apples from the Algoma station included Wolfe River, Gideon, Longfield, Alexander and Wealthy, besides some Russian varieties, such as Borsdorf and Winter Arabka.

Simcoe station was represented by some very fine specimens of highly colored Wolfe River. Spy, Salome, Fallawater, Stark, Pewaukee and Peerless, a new variety of great promise, were also well represented. A magnificent collection of currants bottled in formalin, showing branch, leaf, and fruit clusters, made the exhibit from the Burlington station one of the most attractive. The more desirable varieties, such as Mann, Spy, Russet and Baldwin formed showy pyramids. From the St. Lawrence station McIntosh, Scarlet Pippin and Fameuse were most prominent. Trenton station had the largest collection of apples. There were not sufficient tables to place all of them. Ben Davis, Fallawater, Stark, Yellow Bellefleur, Gano, Fameuse, Trenton and a new variety, Coo's River Beauty, were represented by large specimens of fine quality. A general collection made by Secretary Woolverton from all the stations showed the leading dessert varieties, the leading commercial varieties, and undesirable varieties grown in Ontario.

Entries for the county competition were received from 14 counties, but owing to the delay in sending the prize lists and to the varieties not being suited to some of the districts only eight were represented. In Oxford the County Council refused to grant the required sum, but Messrs. Alex. McNeill, of Ottawa, and J. C. Harris, of Ingersoll, put up the necessary fee in order that that county should be represented. Five prizes were awarded. Hastings had the honor of winning first place, with fruit chiefly from the orchards of W. C. Reid and Lewis Miles. Lambton, Ontario, Lincoln and Kent came in the order named for the other prizes.

The St. Catharines Cold Storage Company won the red card for best general collection exhibited by a society or a fruit growers' association. The next best were shown by Norfolk Union Agricultural Society, Chatham Fruit Growers' Association,

Orillia Horticultural Society, and Leamington Horticultural Society, and awards were made in the order named. In this class the Chatham association had a very attractive exhibit, but it lacked variety of specimens and was composed of packages that were of little commercial use.

The display in the general competition comprised varieties representing every section of Ontario where apples are grown. There was a marked difference in the quality of the same variety when grown in different sections. For color, size, and genuine fine quality the specimens shown by Mr. C. W. Challand, of Marburg, Norfolk county, were far superior to any other collection on the tables. His six varieties of winter apples, comprising King, Spitzenberg, Newton Pippin, Greening, Spy and Baldwin were hard to beat. In several classes specimens were shown for size rather than quality. In dessert classes, particularly, judges should be more careful in awarding prizes to large specimens. In Great Britain dessert apples are only called such when less than three inches in diameter. Criticism was offered regarding the placing of three varieties, dessert, fall, or early winter apples. The prize was given to Blenheim, King and Wagener, over beautiful specimens of Fameuse, Wealthy and Scarlet Pippin, that are much more suitable for dessert purposes. A few promising seedlings were exhibited, among them a good cooker by Mr. W. C. Reid, of Belleville.

In commercial packages Mr. Challand's fruit again merited special mention. The majority of the prizes were carried off by Mr. Elmer Lick, of Oshawa; Biggs Fruit and Produce Co., of Burlington; Mr. J. B. Guthrey, of Dixie; Chatham Fruit Growers' Association, and Forest Fruit Growers' Association. Other winners were C. L. Stephens, A. R. Dawson, W. C. Reid, A. D. Harkness, H. Jones, N. Brown and W. M. Robson.

An exhibit made by the Fruit Division, Department of Agriculture, Ottawa, was in charge of Fruit Inspectors Carey and Gifford. A general display of popular packages for the different fruits, packing tables and demonstrations were important features of the show. Mr. Carey presented a handy home-made press, made of a framework of wood and two bands of iron to go over the box. The pressure was supplied by standing on a lever. Some criticism was made of the circle for the ordinary press on the barrel head on account of it being so small that sometimes the head is broken. It was recommended that the circle be made with a wing on either side to catch the edges of the pieces where the grain runs lengthwise.

A collection sent by Mr. Wm. Harris, of Day Mills, Algoma, showed that Pewaukee, Alexander, Duchess, Wealthy, Gideon, Haas and several Russian varieties thrive in that northern section. The fruit display was twice as large as that made last year, and it was of a most valuable educational nature.

THE FLOWER EXHIBIT A CREDIT TO CANADA

SO magnificent was the sight, as one entered the hall, presented by the display of flowers it called forth an unconscious exclamation of delight. The immense stage was a mass of plants and bloom while most of the tables throughout the hall bore exhibits of beautiful cut flowers.

A framework built high up on the wall at the back of the stage was covered with lovely orchids. Below this was shown banks of palms and chrysanthemums, while along the edge of the platform were displayed exhibits of cyclamen, begonias Glorie de Lorraine, and primulas. Vases of cut chrysan-

themums were also shown on the platform and added greatly to the beauty of the general effect. The chrysanthemum, being queen of the autumn flowers, naturally predominated in the exhibits. This grand flower was shown in various ways. One of the specimens had flowers measuring slightly over one inch in circumference, and

Entries in the carnation classes were numerous, and the competition was keen. Enchantress again won the honor of being the best light pink. Mrs. T. W. Lawson carried off the award offered for the best dark pink. In the red and white sections honors were about evenly divided among the different varieties shown. Some wonderful

A Portion of the Fruit and Floral Exhibits at the Recent Ontario Horticultural Exhibition

brought to mind the plants our grandmothers grew. Blooms that measured 19 inches in circumference were also shown and bore tribute to the wonderful advancement that has been made in the cultivation of this grand flower. Chrysanthemum plants were shown that had but a single flower, while others bore as many as 150 blooms. Those shown by Messrs. Steele, Briggs Company, and Mr. Alex. McHardy, of Toronto, were splendid specimens.

In the rose section every one's favorite, the American Beauty, was the most prominent. The new crimson rose, Richmond, had many admirers, the color, foliage and stem of those shown being as near perfect as could well be desired.

creations of the florists' art were shown in the section for made-up work.

The dining tables set complete for eight persons were a center of attraction. They were judged by Mrs. Mortimer Clark and several society ladies, who decided that the table exhibited by The Rosery, of Toronto, won first prize. The decorations of this table consisted of orchids, lily-of-the-valley, asparagus and Maidenhair ferns. The handsome silverpiece in the center of the table was tastefully arranged with these flowers, and at each plate was placed an orchid button hole bouquet for gentlemen or a corsage display of lily-of-the-valley for the ladies. The settings of this table complete were worth over $1,500.

The judging was very satisfactorily done

by Mr. Jos. Bennett, of Montreal, who judged the plants and cut chrysanthemums, and by Mr. Robert Flowerday, of Detroit, who decided who should have the awards in the roses, carnation and made-up work. Mr. Flowerday expressed the opinion that Canada has nothing to learn from the United States in the growing or arrangement of flowers. It is unfortunate that the exhibition is held at a time of year when it is impossible for amateur flower growers to take a prominent part. The exhibition, however, was started mainly with the idea of promoting the fruit interests, and the dates of the show have to be arranged accordingly.

VEGETABLE EXHIBIT A SURPRISE

The vegetables were shown in the basement and their attractive appearance and exceptionally fine quality caused many exclamations of surprise. A wide table, running almost the entire width of the basement, had been reserved for these exhibits, but proved too small, with the result that many of the vegetables had to be shown along the floor at the side of the table. Down the center of the table were arranged pots of chrysanthemums in bloom, that added greatly to the general appearance. Altogether there were 306 entries..

The best exhibits were made in the cauliflower, citron, cabbage and onion sections. The first prize Swede turnips were pronounced to be the finest ever exhibited in Toronto. They were shown by Mr. R. J. Taylor, of Brantford. An exhibit of cauliflowers, made by Messrs. McKay, of Doncaster, was far better than any one could expect at this season. Two lots of Brussell's sprouts, shown by Messrs. Brown and Dandridge, of Humber Bay, were of excellent quality and were greatly admired. Messrs. W. Harris, J. G. Brown and J. B. Guthrey captured the cream of the prizes in onions. Some very fine white plume celery was shown by Mr. T. Benstead, of Strathroy. The winning bunch was the best that has been shown in Toronto for a long time, being splendidly bleached.

A yellow table squash, shown by Mr. R. J. Taylor, of Brantford, attracted general attention, it being of exceptionally fine quality as regards weight in proportion to size. Some larger squash were shown that did not weigh nearly as much. Some salsify, shown by Mr. T. Delworth, of Weston, was of very fine quality.

The two classes that gave the judges the greatest work were the Danvers onions and Paris Golden celery, in each of which there were large exhibits. The prizes offered for artichokes brought out a large exhibit, including specimens of both good and poor quality. Messrs. Rush and Delworth divided the honors.

Inasmuch as this was the first exhibition ever held under the auspices of the Ontario Vegetable Growers' Association, it was felt that the display for a first effort was a most creditable one and that another year it can be greatly improved.

ANNUAL MEETING OF THE FRUIT GROWERS

THE secretary's report, given at the annual meeting of the Ontario Fruit Growers' Association, held in Toronto November 14-16, showed the association to be in a flourishing condition financially and otherwise. The constitution was revised and officers elected as follows: President, James Scarf, of Woodstock; vice-president, Ed. Morris, of Fonthill; secretary-treasurer, P. W. Hodgetts, of Toronto; directors—Messrs. R. B. Whyte, of Ottawa; A. D. Harkness, of Irena; H. Jones,of Maitland;

W. H. Dempsey, of Trenton; Wm. Rickard, of Newcastle; E. Lick, of Oshawa; M. Pettit, of Winona; E. Morris, of Fonthill; H. H. Groff, of Simcoe; J. L. Hilborn, of Leamington; A. E. Sherrington, of Walkerton; T. H. Race, of Mitchell; G. C. Caston, of Craighurst; W. H. Bunting, of St. Catharines; A. McNeill, of Ottawa; W. T. Macoun, of Ottawa, and Prof. H. L. Hutt, of Guelph.

At the opening session the directors discussed the question of educating the fruit growers by demonstrations and orchard meetings, or any means that would result in a better quality of fruit being produced. Some thought that the horticultural societies should pay more attention to fruit and that growers should be notified when a society in that district was holding a meeting. Others pointed out that societies could not materially benefit fruit growers. The good work done by orchard meetings arranged by Mr. G. A. Putnam, Superintendent of Farmers' Institutes, should not be overlooked, but more of this is needed, and it was suggested that an energetic man, specially interested in fruit growing, be appointed to act with Mr. Putnam to arrange for more frequent meetings and demonstrations. The formation of cooperative associations and the offering of county prizes at exhibitions were considered important features.

The finding of the committee appointed to report on matters connected with The Canadian Horticulturist was favorable. In a discussion in regard to The Horticulturist the members agreed that the magazine has been greatly improved. The report of the committee was unanimously adopted.

AT THE EVENING SESSION.

Hon. Nelson Monteith, Minister of Agriculture, presided at the evening meeting. In his address as chairman he referred to the change of conditions since the time of Ontario's pioneer settlers when fruit was considered a luxury to the present when it is a necessity. Farmers were advised to practise intensive rather than extensive farming. The advisability of some recognition being given to those who propagate new varieties was mentioned as a stimulant to thorough investigative and scientific work.

Questions in horticulture were treated by Mr. Alex. McNeill, Chief of the Fruit Division. The best means of fittingly honoring distinguished horticulturists was dealt with. Mr. McNeill suggested that a suitable biographical address, referring to the work of the late Mr. D. C. Beaddle, be put in the annual report of the Fruit Growers' Association. It was recommended that such varieties of apples as McIntosh Red, Ontario and Baxter should have their histories written so that future generations would know their origin, characteristics and qualities.

The good work of the Transportation Committee before the railway commissioners. and the educational value of such shows as the Horticultural Exhibition were referred to. Mr. McNeill said that the past season taught fruit growers that there should be a systematic and regular report made giving the record of crops and results so that the prospects each year might be compared from month to month. This season buyers operated early and profits that should have accrued to the producers went to the dealers. He urged the growers not to sell until the market conditions were known and not to allow false reports, written by incompetent reporters, to influence them. It was pointed out that Ontario growers supply the local markets, but that they must work hard to gain a strong hold in the markets in the Canadian Northwest in competition with British Columbia and the western States, and also, to increase their trade with Great Britain.

Fruit growing in Great Britain was discussed by Mr. W. T. Macoun, of Ottawa.

The system of land tenure does not induce fruit growing on a large scale. Ireland is progressing rapidly, especially in producing cooking apples. Labor is cheap and this means cheap production. Experiments conducted for 12 years with sod and cultivated orchards showed the disadvantages of sod in comparison with the cultivated orchard.

In an enthusiastic address by Mr. A. N. Brown, a practical grower from Wyoming, Delaware, the fruit growers were advised to cooperate as do other professions. Mr. Brown claimed that special attention needs to be given to the marketing of the fruit. The best results come from cooperation in every branch of the industry. By cooperation in Delaware the growers have forced the buyers to come to their orchards and buy their fruit, paying cash, and have induced the railway companies to supply peach trains with fast engines that have the right of way over passenger trains. Special progress has been made, also, in the potato industry by cooperation on the part of the growers.

Some ideas on plant breeding were given by Mr. H. H. Groff, of Simcoe, who said that new varieties are not secured by gradual development, but that by persistent crossing the type can be broken and a new type established.

REVISION OF THE CONSTITUTION.

On Wednesday, November 15, the revision of the constitution was taken up and the by-laws passed with a few slight changes. A most important change was made that makes it possible for cooperative fruit growers' associations to become affiliated with the Fruit Growers' Association on the payment of 75 cents per member. Branch associations can be formed throughout the province on the same basis. An amendment to have the executive committee to consist of two members appointed by the directors to act with the president, vice-president and secretary, was deemed wise, because a quorum can be secured with less expense and good members can be retained from year to year. Considerable discussion developed over the notice given regarding the annual meeting. It was finally car-

A Portion of the Exhibit of the Ontario Fruit Experiment Stations

ried that notice should be given through the public press and by circular letter at least two weeks before the annual meeting. Notice of an officers' meeting is to be served 10 days beforehand instead of a week as heretofore. In future a quorum for the transaction of business for the association comprises 10 members, instead of seven as formerly. Another change, that was objected to by some members, was the one that allowed the payment of the expenses of delegates to the annual convention for the whole time the convention is in session. Formerly the delegates were allowed two days' expenses. A strong effort will me made to materially increase the membership through local branch organizations.

Questions in connection with transportation will be looked after by Messrs. Bunting, Thompson, E. D. Smith, W. L. Smith, H. W. Dawson and R. J. Graham. The cooperation committee comprises Messrs. Sherrington, Thompson, Johnson, Ross, Peart and Lick. A committee was appointed to look after the appointing of an expert to direct the work at the experiment stations. Other committees are the New Frults Committee and the Historical or Biographical Committee.

In the afternoon new ideas in spraying were discussed by Mr. A. N. Brown, of Wyoming, Delaware. Mr. Brown referred to the ravages of the San Jose scale in that state and accounted for its wide spread, during the past season, to the fact that the wet season nullified the effect of the spraying and also to the shade trees and ornamentals being so thickly infested that a new migration to the fruit trees could not be prevented. He claimed that this enemy must be met in the fall, when the larvae forms are most susceptible, as well as in the spring, if it is to be kept under control. Summer spraying is not effective because the foliage prevents it being done thoroughly. The use of lime sulphur and salt in the fall had resulted in some trees throwing their buds. For this reason he advised leaving the salt out. Petroleum is harmful, too, in the same way. The safest mixtures known in Delaware are two combination washes, one called Kil-o-scale, and the other Scalecide. The latter is perfectly soluble and costs no more than the lime-sulphur wash. Reports from 21 states say that it is effective.

It was pointed out by Mr. Brown that the ordinary hand pump cannot generate sufficient force to give the desirable mist-like spray. Power pumps are a necessity. Nozzles and sizes of extension rods, too, have much to do with the nature of the spray. The bore of the tube must be large and the friction reduced to a minimum by the absence of angles. With proper care and feeding of the soil quality can be put into fruit just as well as into an animal.

THE MINISTER OF AGRICULTURE.

Hon. Sydney Fisher referred to the prevention of the spread of the San Jose Scale by close inspection and fumigation of nursery stock. Reasons were given for placing the chief of the fruit division under the dairy commissioner. The perfect organization of those engaged in fruit growing in California and the consequent satisfactory state of the fruit trade of that country were cited, and the farmers were advised to work harmoniously and cooperatively so that high grade fruit may be produced. This fruit should be put up in a uniform attractive package. With proper methods of packing and handling Ontario growers should capture a large percentage of the trade in the west. The Fruit Marks Act has been leniently enforced in the past, but the growers and packers know what is wanted and in future it will be strictly enforced.

In the report of the new fruits committee Prof. H. L. Hutt, of the O. A. C., Guelph, said that promising seedlings are found from time to time, but perfection has not

yet been reached. Four new seedlings from Gravenhurst were promising. One was a seedling from Duchess but had better keeping qualities. Another, of the Wealthy type, was a prolific bearer when young, and kept well on into the winter months. A seedling from a Guelph garden was of the Colvert type but the fruit was of longer season. A seedling peach from

P. W. Hodgetts, B.S.A., Secretary Ontario Fruit Growers' Association.

Hamilton, of Crawford type, was no better than many standard varieties. Mr. Wm. Orr, of Fruitland, sent a seedling peach that was large and free-stoned. It was of fine quality and superior to any of its season, the second or third week in October. At the Central Experimental Farm, Ottawa, Mr. W. T. Macoun has been crossing with the object of obtaining a variety with quality as high as McIntosh that will keep all winter. It takes time, however, and a thorough test is given before any new varieties are recommended.

Mr. Norman Jack, of Chauteauguay Basin, Quebec, the Quebec Pomological Society representative, told of the advancement made in spraying and in methods of picking, packing and transportation. He said that no hard and fast rules can be laid down regarding cultivation, as much depends on the season.

BENEFITS OF COOPERATION.

The members of the cooperative committee then gave their report on the season's work. It was clearly shown that the cooperative organizations have come to stay and that the growers in the different sections realize that it is the most satisfactory way to handle the crop. Mr. Sherrington referred to the advantage to be gained by having the apple crop packed and marketed through the local associations and regretted that in many sections where organization had been effected there was no fruit to do business with. In most cases the members of the association pick their own crop and take the fruit to a central packing house where it is graded into firsts, seconds and culls. Some growers said that such associations could never be formed in their sections because the farmers would not, or could not, find time to harvest the crop.

"The Burlington Association," explained Mr. A. W. Peart, "works on a different basis. Each member picks and grades his own fruit and his name and address is branded on each box, together with a common brand for the association. All the fruit has been handled in boxes for 15 years. A manager is appointed and paid according to the number of boxes handled."

That barrels can be obtained at a much lower cost than formerly was shown by Mr. D. Johnson, of the Forest Association. That association employs a cooper and obtained barrels for this year's crop at 28

cents. When the association was formed, the growers used to grade and pack their own fruit, but it was found that every grower had a distinct idea as to what were XXX and what XX. Now they have 75 members and the fruit is brought to a central packing house. Much missionary work in the line of spraying has been done through this association with good results.

Mr. W. D. A. Ross, of the Chatham association, reported that individual packing was unsatisfactory and that for four years their fruit had been brought to a central packing house. Cooperative power spraying is done and the cost of the spraying deducted from the returns for the fruit. Good results have been secured this season from sales to Glasgow, f. o. b. at Chatham.

The remaining sessions will be reported in our next issue.

WHAT THE VEGETABLE GROWERS DID

THE convention of vegetable growers, the first held under the auspices of the recently formed Ontario Vegetable Growers' Association, was not largely attended, but great interest was shown in the papers and discussions. Two of the most interesting addresses were those given by Mr. A. McMeans, of Brantford, on the Cultivation and Marketing of Cauliflowers, and by Mr. J. L. Hilborn, of Leamington, on Growing Vegetables for the Early Markets. Extracts from both of these addresses are published in this issue.

A paper by Prof. R. Harcourt, of Guelph, on Fertilizers for Vegetable Growers, was read by Prof. F.T. Shutt, of the Central Experimental Farm, Ottawa, who on its conclusion answered many questions asked by the growers. An extract from this paper appears on another page. Prof. Zavitz, of Guelph, gave a most instructive talk on the results of experiments he has conducted, at the college, in the growing of potatoes. These experiments had for their object the ascertaining of the best size of potato to plant for profit, the depth at which potatoes should be planted, the distance apart for planting to give the best results, etc. A summary of the results will be published in The Horticulturist.

Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, described experiments that have been conducted at the farm in Ottawa, in the growing of vegetables. Prof. T. D. Jarvis, of Guelph, dealt with Injurious Insects that Affect Vegetables. A brief talk that was fully appreciated was given by Mr. A. N. Brown, of Wyoming, Del. Short addresses were also given by Prof. F. C. Harrison and Mr. H. S. Peart, of the Agricultural College at Guelph. After each address scores of questions were asked the speakers and the value of the convention greatly increased.

FRUIT GROWERS AND THE TARIFF

A COMMITTEE representing the Ontario Fruit Growers' Association appeared before the tariff commission on November 17 and asked that no reduction be made in the duty on fruits imported into Canada. It was suggested that a decrease in the tariff on sugar would be in the interests of the fruit industry. The committee consisted of Messrs. W. H. Bunting, of St. Catharines; A. W. Peart, of Burlington; Robt. Thompson, of St. Catharines; D. Johnson, of Forest, and T. H. Race, of Mitchell.

The decision to have a deputation wait on the commission was precipitated by an address delivered at the fruit growers' convention by Mr. W. L. Smith, of The Weekly Sun, and by an announcement made during

the discussion that followed that Toronto dealers had asked that the tariff on fruits be reduced.

Mr. Smith urged the fruit growers not to cut themselves loose from the sympathies of those engaged in mixed farming by endeavoring to have the tariff increased, and pointed out that the agricultural population should work together. Each year finds so much more exported from Canada than is imported that the foreign market governs the price. He claimed that as far as fruit growing is concerned it is impossible to increase the selling price by increasing the protection. There are few American fruits that come into competition with the Canadian product, and if the home-grown crop is handled in as careful a manner as the fruit from the States, Canadian growers will be able to balance up later in the season. The tender fruits from the States come when we have none, and as soon as the home crop is ripe the imported goods are not wanted because the quality is inferior.

According to Mr. Smith, a high tariff increases the price of what is to be bought without increasing the value of what is being sold. He cited the case of baskets. Less than three years ago logs were taken across the line, made into baskets, which were shipped back and sold at a lower price than Canadian manufacturers charged, despite the fact that duty had to be paid. One man in the St. Catharines district was $300 out of pocket on account of the duty on the baskets.

It was pointed out that an export trade is required for our canned goods. To get this trade it will be necessary to reduce the cost of production. A reduction in the price would, also, increase home consumption. The tariff on sugar hinders the development of this industry. The cost of sugar used in canning amounts to one-third the total cost of the goods. Under a reasonable tariff sugar would be much cheaper. Statistics from the sugar making countries in the south show that the raw sugar can be produced at one and one-half cents a pound. At that price over $100 an acre can be realized from the land devoted to sugar cane. There is no reason why refined sugar should not retail at three cents, or slightly more. The encouragement of the beet sugar industry in Canada was termed a misfortune, as it cannot prove a success unless under a high tariff or a high bounty.

Mr. Smith concluded by impressing on the growers the fact that a decrease in the price of sugar would cause more fruit to be preserved and canned and stimulate the demand for fruit, which is a health-giving food. He urged that it is not possible to increase the price obtained for fruit by putting the tariff wall higher, but that such action merely imposes a burden on the consumers.

In the discussion Mr. H. Dawson, commission dealer, of Toronto, claimed that it is well to have the consumers acquire the habit of eating our tender fruits before the home crop is ready for market. He pointed out that our chief imports of fruit and vegetables are made in June and July, and that our exports are 1,000 per cent. more than our imports. The fact that the year of low tariff was the year strawberries were cheapest was referred to, and it was noted that low prices mean enormous consumption. Better transportation facilities were mentioned as being more desirable than increased tariff.

Mr. J. L. Hilborn, of Leamington, thought the tariff should be such that it would help to even up for the duty paid on certain implements that have to be used by fruit growers.

It was suggested by Mr. W. Armstrong, of Queenston, that if it could be arranged to admit American products free up to a certain date and shut them out after Canadian fruit is ready for sale that the Cana-

A Corner in the Basement Where the Commercial Fruit Packages Were Shown.

dian grower would benefit as a result.

Mr. Jos. Rush, of Humber Bay, claimed that only the doctors benefit by the importation of this American "stuff." As long as only good products are sent we can compete, but our prices have to be in keeping with the quality of our fruit, and the majority of consumers take the cheaper goods from the States.

"If we have a surplus of fruit to send out," said Mr. W. H. Bunting, of St. Catharines, "we find a wall practically prohibitive, and if we wish to buy implements we are again at a serious disadvantage. Besides, climatic conditions are against Canadian producers. Our seasons are short and the winters severe. A producer may succeed when hampered by one drawback, but three are too many."

Mr. Jos. Tweddle, of Fruitland, referred to the loss annually owing to the difficulty of getting labor. He claimed that the protection afforded manufacturers made it possible for them to pay high wages and keep the laboring men away from the farmers. Mr. Caston, of Craighurst, claimed that considerable money could be made out of some varieties of apples by shipping them to the northern states were it not for the duty.

While the discussion was going on it was reported that local fruit dealers had been before the tariff commission, which was sitting in Toronto, and had asked for a reduction in the duty on American fruits coming into Canada because these importations did not injure sales from Canadian producers whose fruit was not ripe when the foreign stock arrived.

The fruit growers were unanimous in adopting a resolution that the duty should not be reduced, and a committee was appointed to lay the facts before the tariff commission. This ended the discussion.

THE CASE PRESENTED.

On the Friday evening following this discussion the deputation from the association laid its case before the commission. Mr. Bunting, in introducing the deputation, read the following resolution: "That we,

the committee appointed by the Ontario Fruit Growers' Association, in convention assembled, would respectfully urge upon the tariff commission that it would not be in the interests of the fruit industry of Canada if any reduction should be made in the duties on fruits coming into this country. That, while the fruit growers do not ask for an increase in the tariff on imported fruits, they would request that wherever possible specific be substituted for ad valorem duties."

(Continued on page 486.)

RASPBERRY CULTURE

RASPBERRIES and Their Culture was the subject of an entertaining talk by Mr. A. E. Sherrington, of Walkerton, at one of the sessions of the pomological convention. Many valuable points were brought up by Mr. Sherrington in the discussion that followed. Many varieties have been tested by Mr. Sherrington, who recommends Herbert, Marlboro and Cuthbert as being the most suitable varieties for his section of the province. The recommended varieties vary slightly from year to year because different conditions suit different sorts, and new ones are being experimented with each season. The Herbert is one of the seedlings from the collection of Mr. R. B. Whyte, of Ottawa. During the past season it has given excellent results. The first fruit was picked July 17 and the last August 11. In that time 565 ounces were taken off a 20-foot row. The quality was fine and it has proved to be a good shipper. The Cuthbert, however, was placed as the great standard variety, although outclassed in yield. The first fruit was harvested July 19, and 347 ounces were picked by August 14, when the crop was done. It is hardy and a vigorous grower, and in great demand in all sections.

Marlboro was found to be a shy bearer and to produce a dry crumbly fruit, lacking in quality. In 29 days from July 13 the crop harvested was 330 ounces. Turner came in July 11 and yielded only 257 ounces. On July 13 the first Phoenix were picked, and by August 14 the crop harvested amounted to 380 ounces. The fruit is small, but as a rule there is a heavy yield of good quality.

Black raspberries have been a comparative failure recently owing to the work of anthracnose. Hilborn was the hardiest and best. Conrath comes in earlier, but is not so hardy. Older was perfectly hardy, but is not recommended because the fruit is shiny black and the demand is not so brisk when the characteristic bloom is lacking. It, also, has a very short period of ripening. During the past season the crop was taken off in four pickings, from July 18 to August 1, and six plants yielded 161 ounces. The quality is not good.

Growers were advised not to set out hybrid bushes, as there is no commercial demand. Golden Queen was a very good variety, but is not needed. The same is true of such purple sorts as Columbian and Schaffer. The Columbian is the hardier, but not of such good quality.

It is necessary to have the ground thoroughly cultivated and perfectly free from grass before setting out the plantation. Cultivation and fertilization are the two main factors in having a good crop. Spring planting was recommended as being much ahead of fall planting. It is always best to have the plants set deeply because the roots are surface feeders and they should be kept down as low as possible. The most approved method is to make a furrow with the plow and then turn out another along the same bottom. The bushes can be set in this trench and the roots covered well.

Rows six feet apart give good satisfac-

tion. The suckers are allowed to spread until a hedge-row is formed 30 to 36 inches wide. A space of three feet is maintained between the rows. This system is convenient for working with a horse cultivator, and specially adapted to growing between the orchard trees. A suitable arrangement is three rows of berries with the outside rows nine feet from the trees. When the orchard rows are 30 feet apart this gives satisfaction.

FERTILIZERS.

A fruit plantation needs plenty of fertilizers. Some growers rely solely on the commercial fertilizers. It is true that this avoids weed seeds, but it also results in a deficiency of humus and a compact surface soil. Wood ashes and barnyard manure, at least every two years, keeps the soil in good condition if sufficient cultivating is done. Shallow cultivation is best. Mr. Sherrington used the plow in his plantation one season and ruined the whole patch. The roots gradually come near the surface and plowing cuts the roots that supply the nourishment. A one-horse cultivator, that works the ground up two or three inches, used once a week, or oftener in dry weather, was recommended.

PRUNING.

No summer pruning is done in Mr. Sherrington's orchard, as such practise causes late laterals and numerous suckers. If there is time all the old wood is taken out in the fall; if not, this work is done in the spring after the fruit trees have been pruned. At the latter time, also, the canes are cut back. Great judgment is required in the distance to cut back. In some cases the canes have made rank growth. If there is a sufficient number of buds low down the canes can be cut back much more severely than if the buds are higher up. All canes that are damaged by frosts are removed. The canes are thinned out, leaving the strongest ones four to six inches apart.

From following such methods satisfactory results were obtained during the past season. From 23 rows, 300 feet long, in a young apple orchard, about 3,600 boxes were harvested, and the returns netted seven cents a box. According to Mr. Sherrington, a good yield is 3,000 to 4,000 boxes from an acre.

THE CURRANT PLANTATION

SEVERAL years' experience in the culture of currants have resulted in Mr. A. W. Peart, of Burlington, being classed as an expert in the growing of that class of fruit. Experiments have been carried on by him at the Burlington station, and the members of the Fruit Growers' Association were given the benefit of his work along that line in an interesting paper presented at the annual convention of the Fruit Growers' Association last month.

THE BEST SOIL.

After years of testing, Mr. Peart has concluded that a rich, moist, cool soil gives best results. In case the soil is very fertile satisfactory returns can be had among the orchard trees. When the bushes are shaded there is not the liability to scald that is found in the open, especially with the red varieties.

Better results are obtained from wide planting. The distance apart depends on the variety. As a rule the reds may go closer than the blacks. For the average plantation 6 x 6 or 6 x 7 is advisable. Fall planting should never be practised unless the soil is naturally well drained. If the land is low and wet the plants heave and are found lying on the surface in the spring because they had not time to become established before winter caused the growth to cease.

Mr. Peart usually prunes the bushes in the spring, but does not object to fall pruning if there is time. March is the best month. The old wood is cut out and the strong young shoots cut back, leaving sufficient canes to give a good crop. All wood over three years should be removed, and if the bushes are making vigorous growth the three-year-old wood may go, too. The reds bear on previous year's wood, but the blacks do not. For this reason the blacks cannot be cut back so closely. The bush form is recommended rather than the tree form, where the currant borer is found, because in the tree form, if the borers attack one stem, the whole bush is lost.

The varieties were classed as desirable, doubtful, and undesirable. The sorts placed under these headings are found to differ greatly from year to year. Among the red currants there are two classes of bushes, one of which has a much darker foliage than the other. The lighter green ones are the more rugged. The varieties of reds recommended are Cherry, Wilder, Prince Albert, North Star and Fay's Prolific. Naples, Saunders, Lee's Prolific and Collins' Prolific give best results among the black varieties tested. Undesirable red currants include Belle de St. Giles. The berry is large, but the bushes are unproductive. Brayley and Versailles are also undesirable. Among the whites the White Grape is productive, but White Imperial is highest in quality.

For some time there was a poor demand and correspondingly low prices for currants. This last year or two, however, has seen a change, and many growers have realized encouraging profits. With ordinary planting 1,200 bushes can be set on an acre. These easily average three quarts a bush, which gives 3,600 quarts of fruit from an acre. Recent prices have netted over three cents a quart after paying for packages and picking.

In the discussion that followed the presentation of Mr. Peart's paper, Mr. Joseph Tweddle, of Fruitland, said that there was a tendency to plant currants too close. One of his plantations was planted 6 x 4. Bushes have been removed until they are wide enough apart to permit work being done among them with a team, and he realizes three times the crop.

In reply to questions, Mr. Peart said that a plantation should be profitable for about 10 years. Rich soil is claimed to produce a rank growth that is liable to be killed back during the hardships of winter.

WINTER CARE OF DORMANT PLANTS, BULBS AND TUBERS*

WM. HUNT, O. A. C., GUELPH, ONT.

THE care of the numerous varieties of plants, bulbs and tubers, that add so much to the beauty of home surroundings in the summer time, and that require a period of rest or partial rest during our long winters, is one that presents many very difficult problems to the plant lover. The unattractive appearance of plant life when in a dormant condition often tends to induce even the most enthusiastic plant lover to forget sometimes the absolute necessity there is to still apply a small portion of the care we are so willing to give these plants when they are resplendent in all their summer beauty. Too often, also, our attention is so much taken up with the care of the winter flowering plants or bulbs that we forget our now dull and dingy looking summer friends and leave them to take care of themselves.

A little wholesome neglect is sometimes

* Extract from an address delivered at the convention of delegates from horticultural societies held last month at the time of the Ontario Horticultural Exhibition.

beneficial to plant life, but when it comes to utter neglect and carelessness, even to plants in a resting condition, sorrowful regret at the loss of our summer favorites is the inevitable result of our inattention. Lack of knowledge as to the requirements of plants when taking their winter season of rest, is another factor that is accountable, oftentimes, for failure in wintering-over plants. Possibly there is no one phase or period of cultivated plant life that is less understood or that information is more eagerly sought for by plant lovers than this resting period. A lower temperature and a less bountiful supply of water, or the withholding of water altogether in some instances, are the principal factors in inducing rest or partial rest in plant life. How much or how little of these factors to give or to withhold from the plants is the great problem to solve.

POT HYDRANGEAS.

These plants are of Japanese origin, and are of a deciduous or leaf-shedding nature. Towards autumn, when the blooms have become rusty looking, the plants should be watered less frequently than in the summer until the leaves show signs of decay, when only sufficient water should be given them so as to keep the soil barely moist.

Keep the plants outside in the open until they have been exposed to five or six degrees of frost a few times, when before severe frost the plants can be lifted underneath the veranda or into a shed for a time before being put into the cellar, basement, or a cold room for the winter. A rather moist cellar with a temperature of 40 to 45 degrees will suit the hydrangea. If the atmosphere of the cellar is very dry or furnace heated, wrap the branches of the plants in several thicknesses of burlap or coarse sacking, tea matting, or similar material.

Sprinkle the wrapping about once a week with water. This will keep the wood or growth of the plant from shrivelling, an essential point in wintering over the hydrangeas successfully. Laying the plants down in a box and covering with dead leaves is a very good plan in a dry cellar, but watch out for mice, or they will soon ruin the plants underneath the leaves. I have found excelsior wood-packing fibre, or even fine shavings, a good substitute for leaves and not so likely to attract mice.

FUCHSIAS.

These require very much the same treatment as the hydrangea, but the tender cultivated varieties of these plants will not endure as much frost as will the hydrangea, although two or three degrees of frost will not injure them materially. A moist atmosphere in a cellar where a temperature of 45 degrees prevails will suit fuchsias when resting. The soil in the pots of both hydrangeas and fuchsias should never become dust dry even in a low temperature.

UNCOMMON SHRUBS.

Amongst the evergreen shrubs that can be used very effectively for out-door decoration purposes in summer time and that are seldom seen here, although very common in England and Europe, are the Ancubas, the Myrtle, Japanese Euonymus, Lauristinus, and the Bay Tree. All of these require very similar treatment to the oleander in winter. The mistake is too often made of treating specimens of these evergreen plants in the same way as deciduous plants are treated. Keep all of the plants just named in a temperature of 45 to 50 degrees, avoiding by all means a dry furnace-heated atmosphere. Better a cool damp root cellar for them where there is some light and the temperature near to freezing point all winter than in a dry arid atmosphere. All of these plants are becoming popular for summer and winter decorative purposes.

In giving the temperature and other requirements of the plants I have been speaking of, conditions and temperatures have been named that can usually be found

around every home, rather than conditions not usually attainable by amateur plant growers, such as a cool greenhouse or underneath greenhouse benches.

Always endeavor to ascertain the conditions that surround the plants you are growing where they are found growing naturally, and then give them as nearly as possible the same conditions, when they are in a resting condition, as well as when they are in a growing state. The natural conditions and surroundings pertaining to plant life may be moderated or intensified oftentimes, but to diametrically oppose these conditions, as is sometimes done, means disappointment and failure will inevitably ensue.

EVERGREENS

DAVID Z. MORRIS, BROWN'S NURSERIES, ONT.

WHEN all the other leaved friends of our lawns and roadsides have deserted us, and the chill winds of winter blow, we have but the evergreen to remind us of their departed beauty. When this class of trees is mentioned most people think only of the commonest sort of conifers—the Norway Spruce—and it is only of comparatively recent years in this country that the more rare and beautiful varieties have come into popularity; and the endless possible combinations both of themselves and with deciduous trees have come to be appreciated.

Evergreens in the Arboretum at the Experimental Farm, Ottawa.

Their use has long been quite general in European gardens and nurseries, which difference may, to some extent, have been due to the milder climate, and the popular idea here that their culture in our rigorous rugged zone was out of the question. The writer can recall no more perfect specimens of a large range of varieties of evergreens than that to be seen at the experimental station in Ottawa.

The best results depend very largely on judicious handling of the young stock from the minute it is taken out of the nursery soil till it is again firmly planted in mother-earth. No class of trees is more susceptible to cold, or drying winds, and for this reason they should be carefully protected from exposure of any kind. The roots should be dipped in a puddle of clay and carefully burlapped for shipment. Spring planting, rather later than other classes of ornamentals, seems to succeed best. Much also depends on the nature of the soil, a sandy loam being best adapted to their rapid and luxuriant growth. When setting out,

a judicious amount of water will help to revive the plant, but even this may be easily overdone and result in a mistaken kindness, for the soil must not be kept wet and soggy. When grown in a mucky nursery soil, it is best to handle the choice varieties with a ball of earth secured in burlap.

The selection of a somewhat protected spot is very desirable, especially in the case of the more delicate varieties, such as the junipers, retinosporas, and taxus. Exposure to severe, or constant winds, will prove injurious to these.

The most effective, pleasing, and lasting results in the planting of evergreens may be had by judiciously grouping them, with reference to their contrasting colors and shapes, at the same time distributing these groups over your grounds so that they may be as suggested—effective in winter when the field is all their own. The tall spindling junipers, grouped with spreading, heavy-growing spruce or hemlock; the feathery silvery or golden retinosporas, together with the squatty-growing Juniperus Canadensis; backed up by a few leafy Balsam Fir, breaking the sky line—what combination of ornamental trees could be more effective, either contrasted with deciduous growths or standing out against the snow covered ground and the leafless branches outlined in white.

The long list of quite hardy conifers makes it possible for one to assemble specimens that cannot fail to interest and instruct students and admirers of fine ornamental plantings, just as a collection of paintings or other works of art, and is an unending pleasure to the owner as well as to all beholders.

Among the spruce the Norway is always with us. The Douglas and Hemlock of feathery structure, and the Colorado Blue are among the most hardy and attractive. The Nordman and Concolor, of the Silver Fir class, are hardy and distinct, and should be prominent in every collection where sufficient room is afforded for majestic specimens.

Junipers seem to demand more care than any other class of evergreens, though when once established many of them are quite rugged. The Irish we all know. Then these in the Alpena Nana—low-branched and spreading in habit; the Virginiana or Red Cedar; and the Sabina, of dwarf growth, and also the beautiful golden and silver Japan, will lend life and variety to any mass of foliage.

Of the pines the Austrian and Pondorosa stand out in the open and alone. The Scotch, the White, and the low-down Mugho pines are equally desirable, but of slower and more moderate growth.

The yews comprise many unique and beautiful varieties, but they verge on the tender class and should, if planted, have some protection from wind and alternate freezing and thawing. This is a point that seems not to be appreciated by many. That is: that if a plant is so situated that it may remain frozen throughout the winter until the opening of spring, it will survive, whereas if the warm sun can occasionally strike the bark and the frost partly come out repeatedly, the result will be a loss. This is particularly true of evergreens and rhododendrons.

The arbor-vitae form a class specially valuable on account of their dense growth and hardiness for hedging or screens, though many of these are quite showy as single specimens. Among the former, of course, is the Occidentalis or American. Of the latter class Pyramidalis, Globosa and Hovey's Golden and Tom Thumb are quite hardy, and should be given a place.

Some of the retinosporas will, with slight protection until well established, endure our southern and middle Ontario winters, and on account of their peculiar beauty and effectiveness are well worth the trouble. The

hardier varieties are Aurea and Argentea. To make a complete and attractive planting, as well as an economical and lasting result, the evergreen is just as essential as the perennial or the deciduous class, and may be truly said to be a joy forever.

WATERING HOUSE PLANTS

ALMOST everyone is anxious to have some plants in the windows or on centre tables, and very few homes can be found without some geraniums, fuchsias, begonias or other common plants. Palms, ferns, rubber plants, etc., too, are becoming common. Many plant lovers, however, lose several fine specimens each season from various causes. In many cases failure is due to injudicious watering. Some enthusiasts are too lavish with water, while others allow the plants to become too dry.

The professional florists exercise great care in supplying their plants with water. They have learned from experience how essential to success judicious watering is. While talking to a representative of The Horticulturist recently Mr. Thos. Manton, of Eglinton, one of Ontario's best known florists, said: "There can be no fixed rule laid down for watering plants. In dry, warm weather they need twice as much as when the air is cool. The best way to learn whether water is required or not is to rap on the side of the pot. If there is a hollow sound the soil is too dry. A thorough watering should be given or none at all. I always add water until it begins to run out at the bottom of the pot. If the pot sits in a saucer or jardiniere all the water that runs through should be thrown out. Stagnant water is very injurious to any plant. It is well to put a handful of gravel in the bottom of the jardiniere so that in case some water does run through the flower pot does not sit in it.

"Great care must be exercised in the fall when fires are first started, and again in the spring when warm weather allows fires to be dispensed with. After fires are started much more water is needed. In the spring the quantity can be decreased."

GREENS FOR CHRISTMAS

C. B. M.

THE same apparent cheer is never in the household as strongly as at the Christmas time, and any evidences that may be displayed along that line, in the way of decorations, are always welcome. Many new and novel decorations for table use and window wreaths are looked for, and the following may be of use or offer some timely hints.

Holly, mistletoe and evergreens enter largely into the Christmas decorations, and of late years potted plants and cut flowers as well are fast becoming popular. The fern dish lends itself well for centerpiece table decoration. Filled with sprigs of holly covered with the red berries, and placed on a round mirror, surrounded with arbor-vitae or other Christmas green, it makes a simple but effective centerpiece for the table. Any well formed, not too tall fern, or palm, placed in a pot covered with scarlet crepe paper, finished off with a band of red satin ribbon and smart bow, makes a pleasing addition to any table. The pot thus decorated may be placed on a round mat of moss or bank of holly.

Another pleasing variation is found in a large, low, white basket, filled with red roses, the handle of which is tied with a large scarlet bow having a bright sprig of holly thrust through its loops. Distribute the roses among the guests after dinner.

A hollow, six-pointed star may be made of tin and filled with holly and mistletoe. At each point of the star, place a silver candlestick holding a wax candle, covered with a red paper shade. The red crepe paper bells, easily secured from the local florist at a small price, are also, used extensively to hang over the table. They may be suspended from the light over head. The bells, of different sizes, hung with red streamers, may be used in the archway between the large hall and living room. They make a very effective decoration when the rooms are thrown together for entertainment. Large bows of red satin ribbon may be artistically tied and placed at the opposite corners of a table, and small sprigs of holly, laid at intervals on the table, mixed in with the ribbon and a dashing centerpiece of holly, make a pleasing and easily arranged decoration. The long strips of arbor-vitae will readily adapt themselves to almost any decoration that may be required and make a beautiful showing when mixed with the red of the holly.

Nearly every one has a different idea regarding the decoration of the Christmas tree, that all-important event in a household, and these ideas have to be governed according to the circumstances and means available in each individual household. Strings of popcorn, tinsel, little candles, apples and oranges hung on the boughs of the trees, with the lace cornucopias filled with tiny candies and popcorn, all have had their place from time immemorial and will continue to do so as long as Christmas trees are in vogue, which will be always. Tufts of

The Table That Won First Prize in the Decorated Table Competition

The decorated tables at the Ontario Horticultural Exhibition attracted a great deal of attention. The fittings of this table, which was shown by The Rosery, of Toronto, were worth over $1500. A description of the table is published in this issue.

cotton sprinkled with mica or coarse salt (which is cheaper by far and more satisfactory) are often used to represent snow, and if the trees are to be lighted with the candles the effect is more pleasing to the small folks.

Wreaths of Christmas greens are still seen in the windows of rich and poor alike for many days before and after the all-important day which they are to celebrate. The fashion, if such it may be called, is in some localities on the wane, but it is still popular in many sections. Many persons decorate these wreaths with large scarlet bows which, if deftly tied and of the right kind of ribbon, add much to the decoration.

There are many ways of tying these bows. For a wreath of evergreen, which is less expensive than one of holly, much more trimming may be used. The ribbon chosen for the purpose should be the exact shade, or as near as possible, to that of the holly berry. The soft louisine ribbon is the easiest to manage and produces the most graceful effect when tied. A large bow of two loops and one end, placed at the top of the wreath, and extending in one piece of ribbon, over to about an angle of 45 degrees, where it ends in another similar bow, is perhaps a novel way of tying. A large bow of four or five loops and two ends of the same length, tied to the lower part of the wreath and let hang in their own way, and a round bow of five or six shorter loops, with two ends, one to each side of the wreath, are each in themselves well adapted for evergreen wreaths. One medium sized bow for a holly wreath is sufficient. It is easier and more satisfactory to fasten the ribbon to the wreaths after the bows are made, sewing them on from the underside of the wreaths with a wire or black thread.

The wrapping of Christmas gifts, in white paper, tying them with narrow silk ribbon or fancy cord, and placing a small sprig of holly in the ends or loops of the bow, wrapping the whole in a heavy paper for transportation purposes, is now almost universal. The more dainty effect secured and the more the individuality of the sender is conveyed to the recipient, the nearer we will have come to the blessedness of giving, rather than of receiving.

CAULIFLOWERS AND THEIR GROWTH *

A. M'MEANS, BRANTFORD, ONT.

"I WAS asked to select a subject to subject to speak on at this convention, and I selected the cauliflower, because I have been growing it for the last 10 years. You have heard Alfred Herbert's definition of a cauliflower, 'A cabbage with a college education.'

"Men's ideas change. The grower who a few years ago was disposed to sneer at books and 'book farmers' now turns for information to the printed page. How easy it is to tell in a few short sentences that which we have been years in finding out. Knowledge comes slowly and laboriously from the fields, and yet the closest observation of the character of a plant, its habits, likes and dislikes, and the habits of its enemies seldom goes unrewarded. Much has been written on the cauliflower, and yet it is a stranger to many a garden and is almost unknown in some markets.

"To grow cauliflowers successfully it is necessary to have good loam or sandy loam with loam predominating. It should be made as rich as we know how to make it. Where it is obtainable, I know of nothing

* Extract from an address delivered at the first annual convention of the Ontario Vegetable Growers' Association, held in Toronto at the time of the Ontario Horticultural Exhibition.

better than successive applications of well-rotted stable manure. Plow as early as the first of May. By plowing early we preserve the moisture. When the first sign of weeds appears give a harrowing or cultivation. For your seed bed choose your piece of ground early and plow as early in the spring as possible, harrowing when any signs of weeds appear. About May 15 give a thorough cultivation, harrow well and put on your planker or roller.

"I prefer the plank, as it gives a nice, mellow, smooth seed bed. Do not be afraid to pay a high price for seed, and if possible secure seed that has been grown north. I consider Danish seed better than German.

"Of late years one of the chief faults has been that the germinating power of cauliflower seed has been very low, and whether the fault is due to the seedsmen or in the breeding up of the higher type I know not, but, this I do know, that, generally speaking, it takes one ounce of seed to produce 1,000 to 1,500 plants, and in sowing the seed I sow one ounce to about 400 feet of drill.

"Before the plants break the ground there should be a good supply of tobacco dust on hand. This is one of the best preventives I know of for that little bug that is so destructive to cabbage and cauliflower plants. Put it on while the dew is on the plants. It takes about five or six weeks for the plants to grow to the right size for transplanting.

"It is not good policy to set the plants too small. They should have a good, strong, stocky growth and will be more hardy and live better in an unfavorable time if their growth has been moderately slow in the seed bed. It is never best to crowd cauliflower in the field. Give them plenty of room and you will get better development. For the Erfurt I plant the rows three feet apart and two feet apart in the row.

"A few days before transplanting manure and plow your ground again, harrow well and put on your planker so that your surface is smoothed off nicely, select a cloudy day or after a rain to put your plants out, or if the weather be hot and dry take the afternoon, say from three o'clock, and evening for doing your work. If the soil is too dry, draw water and wet each place a little before setting the plant. Generally there is no need to draw water, as if the ground has been worked properly it will be moist enough to set out the young plants.

"The cultivation should always be level and should be run fairly deep the first and second times, and after that quite shallow. Cultivate as long as possible without breaking the leaves. Cauliflowers if left to grow without covering are not worth anything, but if covered at the proper time will generally come out nice and white.

"Commence to tie them up when the heads are the size of a coffee cup, taking two rows at a time. I use a strong three-ply twine. The tying should be done while the cauliflowers are dry and during the warm part of the day while the leaves are limber. Most people prefer to tie their flowers up tight. I like to leave them as open as possible just so the sun will not spot them, so that when cutting them you can look down and see how they are doing.

"The cutting involves considerable care and judgment, and must not be neglected, for money is often lost by not attending to the cutting at the right time. There are two methods in common use; one is to cut, trim and pack in boxes or baskets in the field as you go along. The other is to cut below the bottom leaf and cart to the barn to trim and pack. By cutting below the bottom leaf it stops the growth of the stalk, while if you leave any leaves on that stalk it lives and draws nourishment from the soil. I use the latter.

"I take six rows and do the third and

fourth rows first, that is cut and tie up as I go along; then I come back on the first and second and any heads that I cut I drop in the row I did first. The fifth and sixth rows are treated in the same way. I leave the twine on till I trim them in the barn."

GROWING CUCUMBERS FOR EARLY MARKETS *

J. L. HILBORN, LEAMINGTON, ONT.

OUR soil is well adapted for growing a few varieties of vegetables. Most of you, I suppose, grow for the local market. Ours are entirely for shipping; we do not try to sell anything in town. Everything goes by express and the express company gets every year $1,300 to $1,400 from us. We grow cucumbers, melons and tomatoes chiefly. I will start with early cucumbers.

It would be useless to attempt the kind of business we are doing without some form of greenhouse to start with. We start all our plants in some kind of greenhouse. There are some 40 greenhouses within two miles from my place. New ones are being built every year, and these houses are used for starting plants to be moved outside. Tomatoes are grown in some of them. We start to grow our plants about the first or second week in March.

The chairman: "What variety do you grow?"

Answer: "We have been growing two varieties, the White Spine chiefly, and Arlington. I would prefer something of the same nature with a deeper brighter green. Bervey's Extra Early White Spine is an early variety and of fairly good size.

"The seeds are started in flats, and when the third leaf is on we transplant them into other flats. We use a flat two feet long and one foot wide and about three to four inches deep. Formerly we used a much deeper flat, but we have found that using less soil is better. The way we discovered this was, that my little boy made some boxes two inches deep and picked out some of the cull plants and set them out in these boxes and every one of his plants beat ours. He used just about an inch and a half of soil and he got more stalky plants. After he had been doing this for three or four years we began doing it and we found that we got a much better rooted and more stalky plant, and we cut all our trays down. That goes to show that we may learn from people whom we think know much less than we do.

"What I say about cucumbers will apply to all the plants that we grow. We use the same plan for transplanting. We transplant the cucumbers in rows, using a stick, something like the head of a wooden rake, in which I have fingers. I make the holes with that."

Question: "What distance apart is it best to have the plants?"

Answer: "The first time put them two by three. With the cucumbers, when they begin to crowd, we put them into larger beds and boxes. I would rather transplant them twice if I had time. The oftener you transplant them the better root you get. You can get a thick, stalky, clump of roots and a more stalky plant and one that will resist checking very much better by transplanting two or three times.

"The man behind the hose has a wonderful lot to do with the plants. I like to let my plants dry out pretty well before I water them and then give them a good wetting and allow them to thoroughly dry again before watering them. Watering too often makes a soft plant that will not stand transplanting."

Question: "What object do you aim at

* Extract from an address delivered at the first annual convention of the Ontario Vegetable Growers' Association, held in Toronto at the time of the Ontario Horticultural Exhibition.

in hardening the plants and then forcing them on again?"

Answer: "We do not let them dry out enough to check them; I like them to dry out pretty well. If you water too often it is impossible to get a hard, tough plant."

Question: "Do you water the leaf or the ground?"

Answer: "I put it right on with the hose, all over the leaf and all. I like to water when it will not reduce the temperature of the house too much. In the morning, just as the sun is coming up, is the best time, but, when we get busy, we water in the evening as well. We use five and six-inch pots and boxes, largely five inches by five inches and five inches deep. We use a good many that are six inches square. In either case we put two plants in the box. We try to get the plants a good size. They run perhaps one and a half feet long before we transplant them."

Question: "You have them in blossom before you put them out?"

Answer: "Yes. It is necessary, of course, not to give them any check in moving them. We are planting a number under cotton. We have a fence about seven feet high to the north and west. To the east there is a bit of grove and to the north. I think it will repay any vegetable man to put up a wind break. It is just like moving 100 miles south.

"We have boards two and a half feet high on one side and eight inches on the other, and use rafters one by four and connect with an angle iron. You can set them up very quickly, ours are 210 feet long and covered with cotton. We put the cucumbers in as soon as the danger of frost is over, about the first or fifth of May, and these cucumbers come in about 10 days later than those planted in the greenhouse. We keep the cotton over them for a while and then start hardening them off.

"We have to spray them to prevent the blight. We use the Bordeaux mixture the same as we use for melons. We have about 2,500 yards of cotton, and most of it is used for cucumbers. After we have the plants out under the cotton if frost threatens (if it is a windy night you will not get frost, but on a still clear night it is very easy to tell if it is going to freeze) if you have water connection just put on your hose and sprinkle your cotton about dark, while is it freezing, and the water will freeze on the cotton and then you will have a covering tighter than any glass house. It is practically air tight and it will stay so until the frost is over. I have found that to work splendidly and we have very little loss from frost."

The chairman: "How is this ground prepared before you put these plants out?"

Answer: "We open the furrows and put the rows in these 12 feet spaces. We open out the furrows with a plow and then put on the harrow and harrow it, then we plant in the hollow and we mulch well with rotten manure. Cucumbers want a great deal of water. We use an inch hose and let the water run through it as fast as it will. We mulch after we plant."

Question: "How do you draw the manure down?"

Answer: "We have a roadway between every two beds and the mulch is carried in trays. It is not a very good job to carry it in. Most of it is thrown directly from the wagon. It is easy to water, and the mulch of the manure prevents the ground from drying out and retains the water so that the plant gets the most of it. We just water the strip and cover with manure, and by running the cultivator once every 10 days or two weeks between the rows we prevent the ground from drying out."

Mr. Dillworth: "How do you run the cultivator when you have these scantlings?"

Answer: "We lift these off; it only takes a short time. We can take them off our beds and have them cultivated in about two hours."

Question: "Do you spray your cucumbers?"

Answer: "Yes, with the Bordeaux mixture."

Question: "Does that prevent blight on them?"

Answer: "Yes."

Question: "What strength do you use?"

Answer: "Four of coperas and six of lime to five gallons of water."

Question: "What time of the year are you past danger from frost?"

Answer: "It varies considerably; we usually start moving our tomatoes out in the field about the third or fourth of May, and we have never had a plant frozen after moving them outside."

Question: "What about cucumbers? Do you grow any outside from transplanting?"

Answer: "Yes. We start these about the first or tenth of April and transplant them the same as the others. We try to keep them as much out of the wind as possible. Above all things get your cucumbers where there is not much wind, if you can."

Question: "Do you train up those that you grow under glass?"

Answer: "You can grow twice as much in the house by training."

Question: "What is the best method of pruning?"

Answer: "I do not profess to be an expert; we prune very little. If we find the laterals are getting too numerous we prune some of them. We allow them to run and branch as they like till they reach the glass, and then nip them. We use poles to run them, sloping a little, and then we run twine along to hold them."

Question: "In the house I am building I intend to try poultry netting."

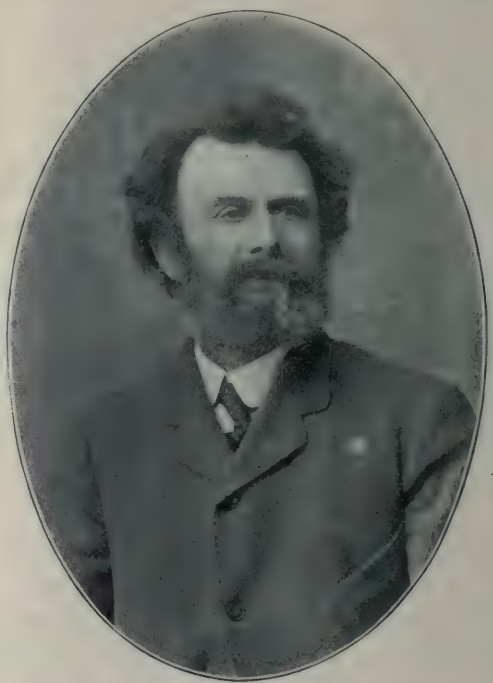
Answer: "I have only one fault to find with that, and that is to get the cucumbers to come down through it."

Voice: "I use three-inch mesh."

Mr. Hilborn: "I want a coarser mesh."

Mr. Dillworth: "What provisions do you make for pollenising the blossom?"

Answer: "We use a camel's hair brush on the first that come, but we endeavor to encourage the bees to come in. If we can get an old bumble bee to come in he will do more than a honey bee."



Mr. Joseph Rush, Humber Bay, Ont.

Mr. Rush is first vice-president of the Ontario Vegetable Growers' Association and an officer of the Toronto Branch of the Association. He is one of the best known vegetable growers in the Dominion.

Member: "I keep a hive of bees in the house."

Mr. Hilborn: "I intend to do that next spring.

Question: "Do you use raised benches or solid benches?"

Answer: "These are raised benches. In some houses we have solid beds and I like them best."

Question: "How close together do you plant in the house?"

Answer: "We put the plants about

three feet apart in the row, one plant to a place. Those that we grow for the greenhouses, we only grow one plant in the box. Our beds are about six feet apart and we run two rows in them. The houses are built for growing tomatoes."

RESULTS OF THE POTATO ROT

THE potato rot has caused great loss this year to Ontario growers. Reports from different sections show that the percentage of affected potatoes varies from 15 to 60, according to the nature of the soil.

The development of this disease has been particularly rapid during the past three or four seasons, and this fall many fields, on which the yield was good, are rendered practically worthless on account of the large percentage of affected tubers. The crops on low clay land in many counties are scarcely worth harvesting. Carloads reaching Toronto from Simcoe, Dufferin, Wellington and Ontario counties show that the disease has wrought great havoc in those counties. Not only has dissatisfaction been felt by the growers, but the dealers in cities and towns have had endless trouble with their customers. The result has been that they are purchasing their supplies elsewhere. For several weeks New Brunswick growers have been able to furnish all that has been required.

Some of the leading produce merchants on Colborne street, Toronto, who handle potatoes were interviewed by a member of The Horticulturist staff. "Early in the season," said Mr. J. J. Ryan, "I handled Ontario potatoes, but the prevalence of rot caused so much trouble that I decided to get my supply elsewhere. The red potatoes seem to be more subject to this disease than the white stock. The potatoes came in looking all right, but after standing about a week nearly half of them were rotten. Since early in September I have imported about 100 cars loads from Wellington, N. B., and in that quantity I have not noticed a bag of bad ones. I am handling 10 cars a week.

"The price was about the same there as here, but the Americans are beginning to look to that province for part of their supply, and the result has been a slight advance in price. Besides, colder weather forces the freight cost up because the cars have to be lined to prevent the potatoes from freezing."

"About September 1," remarked Mr. C. Barrett, "some car loads arrived from central Ontario in which 225 bags out of 400 were bad. Since early October I have got my supply from New Brunswick. There is practically no rot in that province. Dealers from the eastern states frequently buy much of their stock there when the supply is scarce across the line. In case that is done to any appreciable extent this year the price is liable to be raised so high that we cannot afford to import from there and we must then be content with what Ontario has produced."

"Car loads received from different parts of Ontario earlier in the season," said Mr. Ferrier, of Ferrier & Co., "contained 15 to 50 per cent. rotten potatoes. During the first week in November I received some which were not so bad, but I do not know of any section free from rot. We have imported large quantities from New Brunswick. The growers in that province send a white potato, the Green Mountain, known here as Delaware. It is of much better quality than Ontario stock, and the consumers willingly pay 25 cents a bushel more for it. They will pay higher prices for that variety when there is no disease in the Ontario crop.

"Ontario farmers do not realize that they are losing ground in the potato market. They have not learned that they must

change seed frequently and use commercial fertilizers rather than barnyard manure. In New Brunswick and Maine a crop of 300 or 350 bushels an acre is not uncommon. The planting is done with a machine that is equipped with a fertilizer sprinkler as well. Twenty dollars an acre is not counted extravagant fertilizing. Ontario growers must change their methods or lose the market."

By way of aiding the growers to prevent the loss entailed by the rot, the bacteriological department of the Ontario Agricultural College, which has been studying the disease for the last year, would like to ascertain if the disease in various parts of Ontario is similar to the one with which it has been working, and which caused so much damage last year, and hence would like farmers troubled with this disease to mail an affected potato and state at the same time if they were troubled with the soft or wet rot last year and to what extent the rot is present in this season's crop.

VEGETABLE GROWERS BEFORE THE TARIFF COMMISSION

DEPUTATIONS from the Market Gardeners' Association of the province of Quebec, and from the Ontario Vegetable Growers' Association waited on the tariff commission during October and asked for greater protection.

The members of the Ontario association who waited on the commission when it sat in Toronto, asked for the following duty : Cucumbers, 15 cents per dozen; celery, 15 cents per dozen; cabbages, three cents each; beans, other than dry, 40 cents per bushel; tomatoes, two cents per pound; onions, dry, 40 cents per bushel of 50 pounds; potatoes, 25 cents per bushel; water melons, five cents, and musk melons three cents each, other vegetables not enumerated 25 per cent. ad valorem.

The Quebec Market Gardeners' Association appealed to the commissioners when it sat in Montreal and asked for much higher duties than did the Ontario association. Its demands were as follows: Cucumbers, 25 cents per dozen; lettuce, 25 cents per dozen; celery, 25 cents per dozen; egg plant, 25 cents per dozen; green beans, peas and spinach, 50 cents per bushel; tomatoes, 5 cents per pound; onions and potatoes, 25 cents per bushel; green cabbage, 3 cents per head; cauliflower, 3 cents per head; radishes, 10 cents per pound; parsley and watercress, 25 cents per pound; watermelon, 5 cents each; musk melon, 3 cents each ; salted vegetables for pickle, 1 cent per pound; other vegetables not enumerated, and green corn, 25 per cent. ad valorem.

The deputation from the Ontario association was introduced by Mr. A. Campbell, M. P., and Hon. J. W. St. John, M.L.A., and included Messrs. A. McMeans, of Brantford; J. L. Hilborn, of Leamington, and Jos. Rush, of Humber Bay. A number of other well known growers were in attendance, including Messrs. John Atkin, of Sarnia; Geo. Syme, jr., R. Lankin and F. F. Reeves, officers of the Ontario association.

In introducing the deputation Mr. Campbell pointed out that while the growers were aware that a general increase in the tariff would result to their benefit they realized also that the consumers' interests must be considered, and therefore, were moderate in their demands. The existing duty affords little protection. Large quantities of vegetables are shipped into Canada, a considerable proportion of which are in a damaged condition. These vegetables are often passed at too low a valuation. If the industry was properly protected it would increase enormously.

Hon. Mr. St. John stated that the growers need a specific and not an ad valorem duty. The United States growers supply the Canadian markets with their goods early in the season and obtain high prices. By the time their own markets are glutted and the Canadian vegetables are ready for sale they dump their surplus on our markets forcing the prices down to almost nothing. Their poor cabbages, for instance, are sold at such low prices that the Canadian growers are unable to obtain as much for theirs as they are worth. If the surplus stock could be kept off the Canadian markets the desires of the Canadian growers would be satisfied.

Hon. Mr. Fielding asked if the superior quality of the Canadian vegetables was not their best protection. Hon. Mr. St. John replied that it would be were both classes of vegetables placed on the market at the same time, but the poor vegetables from the United States are offered first and force down the price, and later the Canadian vegetables, of better quality, are unable to advance the values.

Hon. Mr. Fielding asked if the vegetable growers are not as well-to-do and making as good a living as any other class of the community. Mr. McMeans replied that if they are it is because their women and children often have to help out with the work. Were the vegetable growers to engage only male help and pay the same wages the manufacturers do they could not earn a living. If the tariff were increased and the price of vegetables thereby advanced slightly it would make it possible for the vegetable growers to give their children the education they should receive.

Mr. J. L. Hilborn stated that within two miles of his place there are some 40 greenhouses and thousands of acres of land devoted to early vegetables. The industry, although seriously handicapped, is increasing rapidly. It would increase tenfold were it properly protected. Last summer the growers sold two carloads a day all over Ontario. At the beginning of the season their tomatoes sold for one dollar a bushel, but later, owing to the United States surplus, the price dropped rapidly until it reached the point where it was not profitable to even pick the crop.

Hon. Mr. Fielding asked if a duty of $1.20 a bushel is not rather high on tomatoes that sell for one dollar a bushel down. In reply it was pointed out that Florida tomatoes are selling for five dollars for crates containing three-quarters of a bushel each. Mr. Rush stated that when tomatoes sell for 25 cents a bushel, as they often do, two cents a bushel is a mere trifle. Beans were cited by Mr. Rush as a vegetable Canadian growers have practically given up growing owing to the United States competition.

The representatives of the vegetable growers made a strong case, and it was evident the members of the tariff commission were impressed with the information brought forward. Hon. Mr. Fielding stated that it was evident the vegetable growers have a grievance.

SUBMITTED A STATEMENT.

Both associations left with the commission a typewritten statement setting forth their demands, as follows:

The association respectfully submits to your honorable commission the following considerations:

1. Since many years our agricultural classes have complained upon reasonable grounds, in regard to the unrestricted importation into Ontario of large quantities of American vegetables, principally of early vegetables, to such an extent that the Canadian producer, the market gardener, who has invested considerable capital in this industry and employs many hands in its maintenance is seriously crippled in his efforts to earn a living.

(Continued on page 487.)

WHAT PEOPLE SAID ABOUT THE EXHIBITION

DURING the progress of The Ontario Horticultural Exhibition, held in Toronto last month, The Horticulturist gathered the following expressions of opinion from leading people present:

This is a grand exhibition. The display of packages and packing is a desirable educational feature.—(C. M. Honsberger, Jordan Station.

It is a great exhibition and a credit to Ontario fruit growers.—(J. C. Harris, Ingersoll.

It is a fine display and shows the variation of color from south to north. The exhibit of boxed fruit is specially striking.—(Norman Jack, Chateaguay Basin, Que.

This exhibition should be of the greatest value to the country. The people are shown what can be grown in Ontario orchards and what are the best methods of packing. Together with the flowers it is an excellent display.—(Elmer Lick, Oshawa.

. For quantity, color and variety it is a great show. The citizens of Toronto do not know what they are missing or more would come to see the display.—(Robert Thompson, St. Catharines.

The quality of the fruit is much superior to that shown last year. Altogether there is a marked improvement.—(W. E. A. Peer, Burlington.

This is the best show in the history of the Fruit Growers' Association. The worst feature is that it is not better patronized by the citizens of Toronto.—(W. W. Hilborn, Leamington.

It is the finest show of its kind ever held on this continent. Everything is attractive and the commercial packages and displays from the experiment stations are decidedly educational. A special advance has been made in the canned fruit exhibit. This will tend to educate the people to use such goods. —(Prof. H. L. Hutt, O.A.C., Guelph.

The show is grand in every respect. The pyramids of fruit are very attractive and the exhibits from the experiment stations better than usual.—(W. H. Dempsey, Trenton.

It is the best display ever made in Canada and decidedly creditable to the fruit growers of Ontario.—(W. H. Bunting, St. Catharines.

This exhibition should prove a great benefit to the grower who takes the trouble to investigate and follow out the points demonstrated and suggested. The appreciation shown by the citizens of Toronto is not very encouraging. Many growers have spent $30 or $40 to help make this show what it is, and the citizens will not spend a few cents to see the display.—(W. Armstrong, Queenston.

The commercial display is magnificent. This show should result in an enormous increase in the consumption of apples and other fruit in this city.—(W. L. Smith, Toronto.

The transition since the first meeting of the Fruit Growers' Association is something remarkable. The display from the different experiment stations is very encouraging.—(A. M. Smith, St. Catharines.

The vegetable exhibit exceeded my expectations 200 per cent. as regards the number of exhibits and their quality. If this exhibition becomes an annual affair the vegetable growers will fill the basement of Massey Hall with their exhibits.—(A. McMeans, Brantford, Ont.

The exhibits of vegetables greatly exceeded my expectations. They are a great credit to the exhibitors and to the management of the show.—(W. G. Carter, Dovercourt, Ont.

The exhibit of vegetables is a decided success and the quality is excellent.—(T. Delworth, Weston, Ont.

It is the best exhibit of vegetables I have seen in Canada. I did not expect to see as good vegetables at this time of year.—(J. Gibbard, Doncaster, Ont.

FRUIT GROWERS STILL DISSATISFIED

HON SYDNEY FISHER, Dominion Minister of Agriculture, while addressing the members of the Ontario Fruit Growers' Association, at their annual convention last month, took advantage of the occasion to explain his reason for placing the chief of the fruit division under the control of the dairy commissioner. The explanation of Hon. Mr. Fisher did not convince the fruit growers that the arrangement he has made is in the best interests of the fruit industry. It would not be far from the mark to say that there was not a fruit grower present who was fully satisfied with the reasons given by Mr. Fisher for arranging his department as he has.

Hon. Mr. Fisher said in part: "The fact that the chief of the fruit division is under the dairy commissioner does not hinder the work connected with that branch being carried out in the best interests of the fruit growers. It is simply a case of administration for efficiency. The Dominion and Provincial Governments have done their best to help the producers and, by working in conjunction, one department has not duplicated the work of the other. The Ontario department has charge of all educational work, while matters pertaining to interprovincial and foreign trade come under my jurisdiction.

"The development of the fruit industry made it necessary, a few years ago, to arrange for improved transportation. Cold storage and refrigerator cars were needed. At that time such facilities were used in connection with the dairy industry. For this reason the transportation of fruit was placed under the direction of Prof. J. W. Robertson, who was then dairy commissioned. Associated with Prof. Robertson was Mr. Ruddick, who was in close touch with the work. When Prof. Robertson retired Mr. Ruddick was given charge of the cold storage and the extension of markets divisions. Inasmuch as the work of the fruit division is closely identified with the work of these two divisions it was deemed to be best to have the fruit division placed under Mr. Ruddick's supervision so that the work of all three divisions could be carried on to better advantage and to prevent the work of one division overlapping the work of another. The same staff was retained to look after the work of the fruit division, and I could not see that there was any need for a fruit commissioner. As long as the staff continues to give efficient service to the fruit growers I can see no just reason why a change in this arrangement should be made."

THE GROWERS' VIEWS.

Owing to the fact that Mr. A. McNeill, Chief of the Fruit Division, was presiding at the meeting at which Mr. Fisher spoke, and to the circumstance that Hon. Mr. Fisher was a guest of the Fruit Growers' Association, the growers present did not like to start a discussion on this matter. After the meeting many of the leading growers informed The Horticulturist that they would have liked to have been in a position to have expressed their views.

The following are the opinions of some of the most representative growers. It should be borne in mind that this is not a political matter as among the growers, whose views are here given, are well known Liberals:

C. M. Honsberger, Jordan Station, president Niagara Peninsula Fruit Growers' Association: "I would have liked to have expressed my views to Mr. Fisher as the present arrangement seems like an unjust transaction and an imposition on the fruit industry. The fruit interests are of too great importance to be dovetailed in with the dairy or any other division."

Mr. Robert Thompson, St. Catharines,

(Continued on page 485.)

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited.

The Only Horticultural Magazine in the Dominion.

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association.

H. Bronson Cowan, Editor and Business Manager.

J. Albert Hand, B.S.A., Associate Editor.

W. G. Rook, Advertising Manager.

1. The Canadian Horticulturist is published the first of each month.

2. Subscription Price $1.00 per year, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00. Receipts will be acknowledged on the address label, which shows the date to which subscription is paid.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid. Societies should send in their revised lists in January; otherwise it will be taken for granted all will continue members.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 24th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

8. All Communications should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE HORTICULTURAL EXHIBITION.

The success that attended the second Ontario Horticultural Exhibition, held last month in Toronto, must be gratifying to those who have the best interest of horticulture at heart. While the attendance on the part of the citizens of Toronto was disappointing it should be borne in mind that it is impossible to gain the support of the public for an institution of this nature in the course of only one or two years. Everything has to grow and prove its right to be patronized, including, even, The Ontario Horticultural Exhibition.

The most encouraging feature was the fact that those who attended were delighted with the show. This means that another year they will return and bring their friends with them and thus greater development may be anticipated. The various conventions, held at the same time, were a most valuable feature. As the years go by, and the exhibition becomes better known, it will be found that these conventions will grow rapidly in importance and attendance.

Next year an effort should be made to run excursions to the exhibition from all parts of the province. It will be possible to do what could not be done this year, that is guarantee half rates over the railways. This will mean a much larger outside attendance. In this work the horticultural societies and branch fruit and vegetable growers' associations will be able to take a prominent part. This year's effort indicates that the exhibition has been firmly established and that its future is bright.

THE NEW ASSOCIATION.

The representatives from the horticultural societies of Ontario acted wisely, last month, when they decided to form a provincial horticultural association of their own. The arrangement that has prevailed in the past, by which the horticultural societies were supposed to hold a joint convention with the fruit growers' association, has never been satisfactory. The fruit growers' association was formed, principally, for the promotion of the commercial fruit interests of the province. Horticultural societies have an entirely different field of work along the line of the development of amateur horticulture and civic improvement. The two bodies would never have been brought together had it not been for the desire of the directors of the fruit growers' association to receive the assistance of the horticultural societies in the publication of their official organ.

The formation of the Ontario Horticultural Association means that in future the fruit growers' association will be able to devote its whole time and attention to its special field of work while the horticultural societies will have an opportunity to take up important matters that have been neglected in the past. Both bodies should profit by the change and nothing but good result. May the life of the new Ontario Horticultural Association be a long one and fruitful of much good work.

FRUIT GROWERS' NEW CONSTITUTION.

The change that has been made in the constitution of the Ontario Fruit Growers' Association is in the right direction, although experience will probably show that the new constitution can be greatly improved. The fact that the cost of membership has been so great as to prevent branch fruit growers' associations from becoming affiliated with the Ontario association has been a serious weakness to the latter body. This defect, by means of the change that has been made, has been overcome in part although it is doubtful if many of the local associations will care to join the provincial body even on the terms now offered.

Before the Ontario association can expect to have many branch associations it will have to realize that the latter must be given much more by the parent body than it receives in return and that the local bodies must be given considerable say in the management of the provincial organization. This latter is the plan that has been adopted by the Ontario Vegetable Growers' Association. It will be interesting to see which plan gives the best results.

Although the Ontario Vegetable Growers' Association has been formed only eight months and is receiving a government grant just one-third as large as that of the Ontario Fruit Growers' Association, it already has a paid-up membership of 225 with branches at Toronto, Hamilton, St. Catharines, Brantford, Leamington, Chatham and Sarnia. The directors of the Vegetable Growers' Association have prepared a plan of work that should greatly strengthen the association, during the coming year. The Fruit Growers' Association will have to bestir itself if it does not want to be relegated to second place.

Two handsome ferns have been given The Horticulturist by Mr. A. Gilchrist, of Oaklea, West Toronto Junction. One is a specimen of the new Nephrolepsis Barrowsi. The other is a well grown plant of Nephrolepsis Scotti. Both are splendid ferns and Mr. Gilchrist has been voted the thanks of the staff for his lovely donation.

The words of praise, expressed at the recent convention of the Ontario Fruit Growers' Association, over the improvements that have been made in The Canadian Horticulturist are appreciated as being a recognition of the efforts we are putting forth to make this paper one of which our readers may well feel proud.

Mr. S. Batcheler, of Leamington, Ont, was recently forwarded a nice premium by The Horticulturist for having purchased goods from the Webster Floral Co., of Hamilton, and for having told them that he saw their advertisement in this paper. It pays to patronize our advertisers. Try it and see.

Could you give any of your friends who are interested in fruit, flowers or vegetables a nicer Christmas present than a year's subscription to The Canadian Horticulturist. Think it over.

When buying from our advertisers don't forget to tell them that you saw their advertisement in The Canadian Horticulturist.

Fruit Growers Still Dissatisfied

(Concluded from page 483.)

president St. Catharines Cold Storage and Forwarding Company: "We would prefer to have a division under a separate head and not subordinate to any other, so that when we want anything we will have a man at the head of the fruit division who will be in touch with our needs and who will be in a position to take action without having to consult the head of any other division. The Dominion department has given us all that we require so far, but we feel that this may not always be the case. It is like putting any other man than a farmer in as minister of agriculture."

Mr. A. E. Sherrington of Walkerton, manager Walkerton Fruit Growers' Association: "Owing to the importance of the fruit industry it is absolutely necessary that the fruit division shall be separate and distinct from any other. After listening to the remarks of Hon. Mr. Fisher in regard to the fruit growers of Canada asking and demanding that a fruit commissioner be appointed at Ottawa, and hearing his statement that the present arrangement will not injuriously affect the fruit interests, I am of the opinion that no matter how good a man Mr. Ruddick may be, he is not in as close sympathy or touch with the fruit growers of the Dominion as the man in charge of the fruit interests of the Dominion department at Ottawa should be."

Mr. W. A. Peer, of Freeman, secretary of the Burlington Fruit Growers' Association: "I listened to Hon. Mr. Fisher's explanation of his reasons for placing the fruit division under the dairy division, but it failed to convince me that his action was in the best interests of the fruit growers. The fruit industry is developing so rapidly it warrants the appointment of an independent commissioner."

Mr. Murray Pettit, of Winona, president Niagara District Fruit Growers' Stock Co., Limited: "Would the dairymen or live stock breeders be satisfied if the chief of their divisions were placed under the chief of the fruit division? They would not, for they would realize that such an arrangement would place their industry in a secondary position. As fruit growers, we cannot but feel that if our industry is to receive the encouragement it should, it should have at its head a man who is in close touch with out needs and who is in a position to act without having to consult a person who is known to lack experience in fruit growing."

D. Johnson, president Forest Fruit Growers' Association: "The fruit growers of Ontario cannot help but feel, in spite of the very reasonable explanation of Hon. Mr. Fisher, that their interests have been placed in a secondary position when their worthy chief has been placed under the control of the dairy department. While we greatly respect and admire Mr. Ruddick personally, yet we are strongly of the opinion that our interests will be largely sacrificed by not having an independent fruit commissioner. The fruit division requires great extension rather than curtailment, and I have no doubt if our present chief is given proper support and liberty of action that the fruit industry will be much helped."

The Tariff Essex Growers Want

The vegetable growers of Essex county have asked for an increase in the duty on certain products that come into keenest competition with the crops produced in that district.

Tomato growers asked for 25 per cent. on a minimum valuation of two cents a pound. It was requested that the tariff on cucumbers be made 25 cents a dozen, cabbage two cents a head and melons three cents each.

I have noted quite an improvement in The Horticulturist, and wish you every success in your efforts to further improve it.—(W. Hewitson, Fruitland, Ont.

Fruit Growers and the Tariff

(Concluded from page 466.)

Mr. Bunting claimed that the tariff that has been in operation since 1897 has been satisfactory to growers and not a burden to the consumers. The fruit industry has increased since 1897 until now there are 350,000 acres in orchard and garden in Ontario. The annual production of apples is about 11,000,000 barrels. In that time the prices have decreased to the consumer although the introduction of such pests as the San Jose Scale as well as the higher wages paid the laborers have increased the cost of production. The improvements in packing and efforts made to develop trade in the Canadian northwest were referred to. If the tariff is reduced the United Statesers would flood our market when they had a surplus and fruit growing in Canada would be rendered unstable.

A specific duty was requested in place of ad valorem because it is more definite, and does not leave a chance to send goods in at a low nominal price. The duty on plums is 25 per cent and on pears 20 per cent. A change to one and a half cents a pound and 25 cents a bushel, respectively, would make the rate practically the same as is imposed on our products going across the line.

In reply to a question from Hon. Mr. Patterson regarding the local dealers claiming that a reduction in the tariff would not hurt the growers, Mr. Bunting explained that the growers looked for a fair margin of profit on part of the crop, and on account of its being perishable it could not be held over. It was necessary, therefore, that the growers obtain the prices that prevail before the market is glutted by the southern crop.

The extent of the fruit industry was referred to by Mr. A. W. Peart, of Burlington. The total value of orchard and garden lands in Ontario was placed at $40,000,000. The increase in production, and the consequent decrease in profit during the past few years was materially increased by the cost of labor which had advanced owing to protection to the manufacturers enabling them to pay high wages. The fact that canning factories and box, barrel, and basket factories depended on the fruit industry was also alluded to.

The high price of sugar was taken up by Mr. Robt. Thompson, of St. Catharines. The following resolution was read: "That this association believes it to be desirable, and in the interests of the fruit industry and the general public, that a reduction should be made in the tariff on refined sugar." The need for an outlet for our surplus crops, and the necessity of cheap sugar to assist the canners to compete on foreign markets was emphasized. Last year jams and jellies to the value of nearly $1,000,000 were imported and these were made from fruit sent from Canada and manufactured where sugar was cheap.

Mr. D. Johnson, of Forest, declared that the fruit growers should be encouraged in every way possible. If Canadian canners could secure sugar and glass at the low price that a reduced tariff on these articles would ensure, our increased trade in canned goods with our Canadian northwest and with foreign countries would benefit the growers as well as the consumers. A large percentage of our apples is allowed to go to waste each year that would be canned if conditions were more favorable.

During the hearing the commissioners showed their interest in the fruit growers' requests by asking questions bearing on the points brought up by the different members of the committee. The case for the fruit growers was presented by the committee in a most able manner.

Fruit Convention Notes

The Ontario Fruit Growers' Association appointed Messrs. H. Jones, E. Lick, W. H. Bunting, R. Thompson, Murray Pettit, A. W. Peart, J. L. Hilborn, D. Johnson and A. E. Sherrington to represent the fruit growers at the Dominion Conference that is to be held in Ottawa in February.

An illuminated address was presented to Mr. W. H. Bunting by the association, showing the hearty appreciation of the growers for the businesslike manner in which he has labored in the interests of the fruit industry.

A resolution was passed fittingly recognizing the good service rendered by Mr. Alex. McNeill, as president of the association and as chief of the fruit division at Ottawa.

The able manner in which Canada and her fruit interests were represented at the St. Louis Exposition was referred to in a resolution congratulating Mr. T. H. Race on his good work.

A welcome visitor at the fruit growers' meetings was Mr. L. B. Rice, of Port Huron, Michigan, who represented the Michigan Horticultural Society. On behalf of that society he wished Ontario's efforts every success and extended a cordial invitation to the Ontario Fruit Growers' Association to be represented at their convention in Grand Rapids, December 5 to 7.

The benefits to be derived from educational work through the Farmers' Institutes and educational features at the fairs and exhibitions were recognized by the growers, and a resolution was passed asking Mr. G. A. Putnam, superintendent of the institutes, and Mr. H. B. Cowan, superintendent of agricultural societies, to extend this work.

A resolution was passed by the fruit growers instructing the delegates to the Dominion Conference to urge the federal parliament to place express rates within the control of the Railway Commission. The express rates, at present, are exorbitant.

The executive of the Fruit Growers' Association were instructed to wait on the proper railway official to try to secure the privilege now accorded agricultural societies, of free return tickets from their annual convention without regard to the number in attendance.

Please accept congratulations on the grand publication you issue under the title of The Canadian Horticulturist.—(Harry H. Davey, The Fruit World, Melbourne, Australia.

MUST HAVE STANDARD PACKAGES

Fruit growers and representatives from the manufacturers of fruit packages met and discussed matters pertaining to sizes and shapes of packages at the annual meeting of the Ontario Fruit Growers' Association held in Toronto on November 16. Those present were unanimous in the opinion that standard sizes and standard shapes should be adopted. The growers appointed a committee to meet the manufacturers so that the matter may be brought before the authorities.

It was evident, from the discussion, that neither the manufacturers nor the growers knew the dimensions of what is termed the Ontario apple barrel. It was also clear that each manufacturer of baskets makes a basket to suit his customers.

In opening the case for the growers, Mr. Robert Thompson, of St. Catharines, said that the 11-quart basket had given satisfaction, but suggested that the six-and-two-thirds quart basket be discarded and a half basket or one with five-and-a-half quart capacity be used in its stead. He claimed that the six-and-two-thirds quart basket is not generally made now because it does not sell for more than a half basket. For that reason smaller sizes are used. The present carriers for tender fruits are not satisfactory, and the pear package requires to be improved. Standard dimensions are wanted for each size because, when only size is mentioned, each manufacturer prepares a last to suit, and perhaps no two makers turn out packages similar in shape. The length, depth and width at top and bottom must be made imperative. It was also suggested by Mr. Thompson that the 96-quart barrel, with 28½ inch stave, should be adopted in place of the larger barrels now used in Ontario.

Mr. James Innes, barrel manufacturer of Chatham, said that New York growers had shipped pears successfully in a keg with 17½ inch staves and 14 inch head. With regard to the apple barrel it was explained that staves that were not good enough to make flour barrels could be used in the manufacture of apple barrels. This is the chief reason why manufacturers turn out so many 30 inch barrels. These, however, can be cut down to the 28½ inch size.

It was pointed out by Mr. A. E. Sherrington, of Walkerton, that the people in Great Britain know the Ontario barrel to be larger than the one used in Nova Scotia, and willingly pay more for it. The merchants across the water had informed him that the size should not be changed.

A basket manufacturer said it was advisable to have a uniform size, shape, and make throughout Canada, but that steps should be taken, also, to prevent other sizes and shapes being imported. Another said that there should be common sizes, and that if any other size were made the capacity and dimensions should be plainly stamped on the outside of each package. Mr. Everest suggested that inspectors be appointed to see that the law is lived up to. He thought that in most cases the producer was to blame for the various sizes now used. This statement was challenged by Major Jas. Shepherd, of Queenston, who claimed that manufacturers go around offering the smaller baskets to the producers at easy prices.

It was pointed out by Mr. Geo. Williams, of Thorold, that, as the manufacturers have various dimensions for the different sizes now in use, samples from the factories should be submitted to the growers. A committee could then decide on the most satisfactory dimensions. It entails considerable expense to change the last on which the baskets are made. The one that looks best and packs to best advantage in a car should be adopted.

Dairy Commissioner J. A. Ruddick pointed out that something definite must be laid before the Dominion Parliament and suggested that a committee be appointed to prepare a definite request that can be further discussed at the Dominion Fruit Growers' Conference that will meet in February.

A committee comprising Messrs. Robert Thompson, A. W. Peart, D. Johnson and W. D. A. Ross later conferred with the manufacturers of packages and it was arranged that the manufacturers should submit samples, so that the committee may select the one that suits best and present their report at the conference in Ottawa in February.

Vegetable Growers Before Tariff Commission

(Concluded from page 481.)

2. The American tariff on vegetables imported from Canada into the United States is almost prohibitive, carrying both specific and ad valorem duties; the American climate enables the American market gardeners, in advance of our own, to cultivate vegetables in the open fields, at an extremely low rate of wages, and when the United States markets are sufficiently supplied the surplus stock of garden produce is shipped into this country and dumped on our markets on payment of such an insignificant duty that the competition caused to our gardeners is in many instances ruinous. The injustice of the situation is increased by the fact that the United States markets are practically closed against Canadian growers.

3. Such American garden produce arriving at Montreal and Toronto in large quantities, being the surplus stock of the United States markets, and on account of its perishable character, valued at extremely low price, and subject to an insignificant duty, is acquired at very inferior prices by Ontario importers and unexpectedly thrown on our markets, glutting the said markets and causing great loss and damage to our farmers and gardeners.

4. As a result of this wholesale, indiscriminate and unregulated importation of American produce, the Canadian markets are filled with foreign vegetables long before our crops are ready for sale, and all early vegetables cultivated in Canada are liable to fluctuation and falls in value of such extent and uncertainty as to discourage market gardening in Canada.

5. Not only have very large amounts been in-

vested here in proper equipment for the carrying on of the market gardening industry and the early production of vegetables (amounting to many millions of dollars), but many thousand families rely on the maintenance and development of this industry for their subsistence.

6. The industry is susceptible of very great extension and of furnishing a profitable and happy livelihood to a large class of our agricultural population.

7. It is to be borne in mind that the market gardeners of Canada pay considerable duties on every article that they use in their industry, on garden tools, on harness, carts, wagons, all agricultural implements, on their clothes, the materials for their conservatories and in fact all that they use for the prosecution of their industry; they do not, however, object to such conditions if a protective policy is deemed necessary in the country's interests. The market gardeners merely ask for a reasonable protection of their own interests.

8. The association in no way seeks to obtain the exclusion of American garden produce, but the enactment of such changes in the Canadian tariff, on the lines adopted by the United Statesers in their own country, as will secure fair and stable conditions in our own vegetable markets and prevent our home market being made the dumping ground for the surplus produce of the United States.

9. A careful examination would show that our market gardeners, if encouraged, would be in a position to supply most of the requirements of our markets during the whole year with new and fresh vegetables, such as lettuce, watercress, radishes, celery, cauliflower, cucumbers, spinach, parsley, etc., at fair prices.

10. The Canadian duty on vegetables imported into Canada is as follows:

Beans, 15 cents per bushel.
Peas, 10 cents per bushel.
Potatoes, 15 cents per bushel.
Vegetables not otherwise provided for, 25 per cent.
Fresh tomatoes, 20 cents per bushel and 10 per cent. ad valorem.

11. The United States duty on vegetables imported from Canada is as follows:

Beans, 45 cents per bushel of 60 lbs.
Cabbages, 3 cents each.
Onions, 40 cents per bushel.
Green Peas, 40 cents per bushel.
Potatoes, 25 cents per bushel of 60 lbs.
Vegetables in their natural state not otherwise provided for, 25 per cent. ad valorem.

(To be concluded in January issue)

Coopers to Combine

The manufacturers of barrels, boxes and baskets throughout Ontario purpose forming a combine. They say they do not do so with the hope of advancing prices as is the case with most combines. Two years ago, when the coopers took advantage of a shortage in stocks and held out for excessive prices, the result was that the following year found cement men, millers and others using bags and sacks, while the fruit growers adopted a standard box and agitated for the use of boxes instead of barrels for shipping fruit.

The cooperage manufacturers realize that if they supply barrels at reasonable prices they can restore their market, and it is with the purpose of reducing the price to the producer that the combine is being formed.

A meeting for this purpose was held recently in Toronto. About 20 manufacturers have signified their intention of forming a joint stock company. It is proposed to have a central office for buying and selling stock and output. In this way travellers would be dispensed with and the expenses materially decreased. Inspectors would be employed to see that high grade stock was supplied. An effort is being made to get others to join the combination. As soon as 80 per cent. of the output is under control the company will be incorporated.

Would Reduce the Tariff

The retail fruit and vegetable merchants of Toronto and London appeared before the Tariff Commission and asked for considerable reductions in the duty on certain products coming into Canada.

At Toronto the case was presented by Mr. F. C. Higgins, who pointed out that climatic conditions prevented Canadians from producing certain fruits and vegetables. In those products that are grown here he said that there is a natural protection in the perishability of the goods, and in the expense entailed in putting them on the Canadian market.

It was claimed that the existing duty of 25 per cent. on cranberries is prohibitive, and as the production in Canada is small the tariff should be reduced to $1.00 a barrel. At present it amounts to about $3.00. The present duty of two cents a pound on grapes was thought to be double what it should be. On strawberries the same duty was said to be excessive. In peaches it was asked that the duty of one per cent. per pound be reduced to half a cent from December 1 to August 15, and left as it is the remainder of the year.

Mr. Frank Simpson asked for a reduction on potatoes from 15 to 10 cents a bushel. It was thought the duty of 25 per cent. on tomatoes was ample. The duty on onions should be reduced from 15 to 10 cents a bushel. On cucumbers, asparagus, celery and cauliflower it was asked that the present duty be retained.

Mr. G. G. Steele presented the case at London, and said that the importations did not interfere with the fruit men. The following changes were asked for: Tomatoes, 25 cents a bushel instead of 20 cents and 10 per cent.; potatoes, reduction from 15 to 10 cents a bushel melons, reduction from 25 to 12½ per cent.; onions, reduction from 25 per cent. to 10 cents a bushel; cranberries, restoration of old duty of 30 cents a bushel; grapes, reduction from two cents to one cent a pound, or, failing that reduction, to one cent on grapes from Spain and California; peaches, reduction from one cent to half a cent a pound from December 1 to August 15.

ONTARIO HORTICULTURAL ASSOCIATION FORMED

The delegates, from the horticultural societies of the province, who met in Toronto last month at the time of the Ontario Horticultural Exhibition, decided to form a provincial organization to be known as the Ontario Horticultural Association. The objects of the association, as outlined at the meeting, are to bring the various societies of the province into closer touch with each other and to introduce more uniform and improved methods of work as well as to look after the interests of the societies generally.

The following officers were elected: President, W. B. Burgoyne, of St. Catharines; first vice-president, Major H. J. Snelgrove, of Coburg; second vice-president, Joseph Barker, of Kincardine; secretary-treasurer, H. B. Cowan, of Toronto; executive committee, R. B. Whyte, of Ottawa; R. W. Woodroofe, of Woodstock; C. L. Stevens, of Orillia; A. T. Armstrong, of Millbrook; W. Jeffers Diamond, of Belleville; A. Alexander, of Hamilton; H. R. Frankland, of Toronto; J. T. Rose, of Brantford, and Robt. Mann, of Orangeville. The president, first vice-president and secretary-treasurer were empowered to draft a constitution and to wait on the government to urge the adoption of legislation in the interests of the horticultural societies.

At the afternoon session of the convention Mr. W. B. Burgoyne described the excellent work that has been accomplished by the St. Catharines society during the past year. With a government grant of only $51 the society has distributed $8 and $9 for horticulture for every one that has been received from the government. The distribution of seed among the school children had been very profitable. A discussion of Mr. Burgoyne's remarks was entered into heartily by Messrs. Diamond, of Belleville; Barker, of Kincardine; Hunt, of Guelph, and other of the delegates. Several delegates said that they found the giving of The Horticulturist to their members had been productive of excellent results. The meeting then proceeded with the election of officers, which resulted as already given.

During the afternoon interesting addresses were given by Mr. Wm. Hunt, of Guelph, on The Care of Dormant and Semi-dormant Plants Throughout the Winter, an extract from which address appears in this issue, and by Mr. W. T. Macoun, of the Experimental Farm at Ottawa, who described some of the best features of the botanical garden at the farm. An outline of his paper will be published in The Horticulturist. The convention was considered to be a great success and the delegates appeared to be enthusiastic regarding the possibilities for good work that lie before the recently formed provincial association. A full report of the discussions will be published in the January issue of The Horticulturist.

Burlington

The annual meeting of the Burlington Horticultural Association was held at Freeman November 9th, with the president, A. W. Peart, in the chair. In his annual address Mr. Peart reviewed the work that the society had accomplished during the past season and outlined work for the future. The directors reported on the different classes of fruit grown in the neighborhood that had given the best results.

The report of the secretary-treasurer, and the auditors' report, showed that the society has a substantial balance on hand. The officers elected for the incoming year were: President, W. F. W. Fisher; first vice-president, J. S. Freeman; second vice-president, R. C. Fowler; secretary-treasurer, W. E. A. Peer; directors, D. Jardine, W. V. Hopkins, J. S. Freeman, H. T. Foster, R. C. Fowler, A. W. Peart, J. A. Lindley, W. E. A. Peer; auditors, H. T. Foster, W. H. Easterbrook; shipping committee, H. T. Foster, E. W. Lewis.—(W. E. A. Peer, secretary-treasurer.

Fruit Growers Provincial Convention

The annual meeting of the Nova Scotia Fruit Growers' Association will be held at Annapolis on December 12, 13 and 14. Among other questions the following will be discussed, Size of the Standard Barrel, Transportation, Co-operation, Spraying, and Improved Orchard Practice.

Secretary Barker, of Berwick, writes The Horticulturist that they are hoping for one or two good men from abroad, and expect to put on a good program of local men.

It has been decided to hold the winter meeting of The Pomological and Fruit Growing Society of Quebec at Richmond, Que., December 13 and 14. Secretary Wood, of St. John, Quebec, informs The Horticulturist that the program containing full information will be out before December 1.

The British Columbia Fruit Growers' Association will hold their annual meeting in Vancouver. The date has not yet been fixed. Secretary Brandrith, of Ladner, sends The Horticulturist the following list of speakers and subjects: T. F. Patterson, B. S. A., of Vancouver, Economic Entomology; H. H. Harris, sen., of Vancouver, Floriculture; J. A. Catherwood, of Hatzic, Freight and Express Service; W. J. Brandrith, of Ladner, Varieties of Fruit for the City Garden.

Keen Demand For Fruit

Cable reports from Woodall & Co., Liverpool, England, to their agent, Mr. Eben James, Toronto, show a firm market with a tendency to higher prices for apples for some weeks past. On November 22 this firm cabled: "Prospects most favorable, 8,000 barrels selling, market active and higher. Greenings 20 to 23 shillings, Baldwins 21 to 22 shillings, Spys 21½ to 24 shillings, Russets 20 to 24½ shillings, seconds 3 shillings less." The shipments from Canadian ports to date are 648,138 barrels, compared with 534,953 barrels for the same period last year.

Exhibitions of Work Enjoyed

Many visitors at the Ontario Horticultural Exhibition were pleased to find the Air Pressure Water Systems and Wallace Power Sprayers on hand in the display of Mr. W. H. Brand, of Grimsby, Ont. Regret was expressed that the absence of power shafting prevented Mr. Brand from giving a full demonstration of the capabilities of the "Junior" machine he managed to get into the basement of Massey Hall. As it was, he explained the system employed and gave as much of a practical exhibition of it as was possible when operating by hand, rolling in 15 to 20 pounds pressure in a very short time. This, of course, was purely air. It is a free agent and indeed a powerful one.

Mr. Brand's company have a variety of outfits of all sizes and capacities and for every purpose for which a power sprayer can be used, and they are well spoken of by Messrs. E. D. and J. W. Smith, Alex. Glover & Sons, of Winona; Wm. Orr, R. H. Dewar and C. C. Pettit, of Fruitland; Capt. Roberts, of Grimsby; Col. Ptolemy, Stoney Creek; E. G. Beckett and R. H. Lewis, of Hamilton; W. H. Dempsey, Fruit Experiment Station at Trenton; Mr. Macoun, of the Central Experimental Farm, Ottawa, Ont.; R. Jack & Sons, at Chateauguay Basin, Quebec, and others in Canada.

Over 3,000 of his Pneumatic Water Systems are in use throughout the world, some of them being in Canada. They are used by farmers of all descriptions, town residents who have no other pressure service to draw from, and by owners of high buildings wherein it is desired to further augment the fire protection by adding to the city service a private tank. Write Mr. Brand for information regarding either of these necessities. Their cost is quite commensurate with the articles. Address him at Jordan Station, Ont.

Proper Packing Important

Many fruit growers and shippers admit that before Canadian fruit can demand the best prices in Great Britain it must be properly packed. Many of the leading growers have adopted the Biggs system of packing that was shown at the recent Ontario Horticultural Exhibition in Toronto. The Biggs Fruit and Produce Co., of Burlington, Ont., make a specialty of supplying fruit growers with the very best appliances for the packing of fruit, including their press and packing table. The Biggs Co. also makes a specialty of shipping select fruit direct to any address in Great Britain without any extra cost.

A Capable Man Advanced

The Allan Steamship Company has secured the services of Mr. D. O. Wood, late with the Robt. Reford Steamship Company, as their western freight representative. Mr. Wood will be located in Toronto, and will have charge of the freight business for The Allan Company in western Ontario. A better man for this work than Mr. Wood would be hard to find. He has been with the Grand Trunk Railway over 20 years and a number of years with the Robt. Reford Co. The long experience gained by Mr. Wood when with these companies makes him well qualified to oversee the large shipments of apples, cheese, butter, etc., handled by this firm. The Allan line has completed a chain between the fruit growers in Ontario and the consumers in Great Britain and a better man to extend the business of the company would be hard to find. This firm purposes placing several new boats on their line and will devote special attention to the export fruit trade.

A Correction

In the article Spraying Competition Challenge that appeared in the November issue of The Horticulturist, the omission of "as is" made Mr. Brand say blue vitriol and white arsenic were not soluble in water. The sentence should have read "In doing this it carries with it such components as Paris green, which is not perfectly soluble in water, as is blue vitriol, white arsenic, etc., but remains in a very fine but heavy powder."

Again, in the paragraph regarding how to judge as to which machine produced a proper spray the addition of the words "those who" slightly changed the meaning. This sentence should have read "The way to judge which of these machines will best perform the work is to be governed by verdicts of users of them, or see both makes in actual operation."

Fruits, Vegetables and Tubers

Great caution should be exercised in the selection of varieties, and as a rule it is not wise to purchase novelties. However, Canadian growers know that new specimens introduced by Stone & Wellington are worth having because they have been thoroughly tested before being offered to the public.

Three recent introductions have proven to be adapted to Canadian conditions. The Maynard plum, Burbank's greatest introduction, has withstood the hardships of our winters; the Ideal asparagus, a French variety, is far ahead of other varieties, producing large crisp stalks, and the Gold Coin potato, a Vermont variety, was the best yielder tested at the Central Experimental Farm, Ottawa, averaging 554 bushels per acre.

Steel Grape and Fence Posts

An attractive exhibit at the recent Ontario Horticultural Exhibition was a display of steel grape posts and fence posts, by The Canadian Portable Fence Co., Limited, of Toronto. There is a growing demand for a steel post, and this enterprising company did not hesitate, but immediately set to work to design their steel grape posts according to the ideas of the best known grape growers of Canada.

The grape posts are made on much the same lines as the well-known steel fence posts, that have made for the company an enviable repu-

tation in the fence industry. The anchor, or end posts, are rigid steel trusses, with means of tightening and adjusting tension on wires. The stationary anchorage is recommended, although the portable, being simpler to set, is frequently demanded. The line posts consist of a single angle steel upright, driven about two feet into the ground. This saves the digging of a post hole. The posts being only one and one-half inches wide take up practically no space—a matter of great importance for plowing, spraying, and collecting fruit.

The company is prepared to sell these grape posts direct to the fruit growers. Inquiries should be addressed to their head office, foot of Jarvis street, Toronto. They have every facility for turning out these posts rapidly and economically, and solicit the patronage of the Canadian fruit grower for a home production invented in and made in Canada.

How to Grom 'Mums

Every lover of flowers is anxious to have a few chrysanthemums. Much information of value to those interested in the culture of this beautiful plant is to be found in a book prepared by Arthur Herrington entitled The Chrysanthemum. This work is worthy of special perusal by amateurs. It includes the

20 PER CENT. OFF

That's really the difference between our prices and those in the United States when you consider the matter of duty! If you are not one of our many customers, be sure and drop a card for one of our illustrated catalogues "**Canadian Plants for Canadian People**" out 1st March.

THE WEBSTER FLORAL COMPANY, LIMITED

FLORISTS, NURSERYMEN AND SEEDMEN. **HAMILTON, CANADA.**

Horticultural Societies

WHAT HAVE YOU DONE ABOUT THE NEXT DISTRIBUTION OF

? PREMIUMS ?

LET US SUGGEST SOMETHING THAT WILL SATISFY ALL YOUR MEMBERS.

Our prices are right; the quality of our stock is the best.

J. GAMMAGE & SONS, - London, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

history of the plant and a practical treatise on propagation, suitable soils, watering, cultural methods and every detail connected with producing good plants. Illustrations are given to show cuttings ready for planting and, later, ready for the first potting. Crown and terminal buds are fully discussed and well illustrated. The value of fertilizers is treated and the difference between "fed" plants and those grown under ordinary conditions illustrated.

A chapter is devoted to the preparation of plants for exhibition and judging. Specimens of bush and standard plants are shown and their culture fully given from propagation in December to the fully developed plant. Commercial culture, growing seed and hybridizing, and insect and fungus pests, with their treatments, are carefully described.

Those interested should write to Morang & Co., Limited, 90 Wellington street west, Toronto. The price of this book, well bound and containing 32 illustrations, is 50 cents.

Exhibit Attracted Attention

The education features of the recent Ontario Horticultural Exhibition in Toronto, were greatly appreciated by the large number of fruit growers who were present from all parts of Ontario. Among the many exhibits was that of the Little Giant Sprayer from Port Dover, Ontario. Mr. Perkins, who was in charge, was a busy man, explaining to interested spectators the many points in this sprayer that are not contained in any other machine. Among the interested visitors to this exhibit were Hon. Nelson Monteith, Hon. Mr. Fielding, and other prominent persons, who expressed themselves as being pleased with the simplicity of operation and the many excellent features the Little Giant Sprayer possesses.

Mr. Perkins intimates that a number of orders were secured for spring delivery, and wishes to advise intending purchasers to place their orders at once as their doing so will enable the manufacturers to have the machines delivered in time for use in the early spring season. Delays in delivery, when the season opens up rapidly, are annoying and costly. A large staff will be kept busy during the winter manufacturing Little Giant Sprayers, and all orders placed will receive prompt attention.

The basket section in the trade exhibits at the recent Ontario Horticultural Exhibition in Toronto was ably represented by the Oakville Basket Co., which made an extensive display of the articles the firm manufactures for the fruit trade. The high quality of workmanship evident in the samples shown indicates the reason why this firm stands at the top of the basket manufacturers of Canada.

Fruit growers who heard Mr. A. N. Brown, of Wyoming, Delaware, talk on spraying, will be interested in an advertisement that appears in this issue for Kil-o-Scale. Mr. Brown stated that this insecticide has given entire satisfaction in treating San Jose Scale in Delaware.

IT PAYS

to grow good fruit, and every grower wants

To Have the Best

We carry a full line of the very best nursery stock,

Trees, Shrubs and Vines

Write for our beautiful catalogue, and select the varieties suited to your locality.

The Helderleigh Nurseries

E. D. SMITH, Winona, Ont.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.

FL 2-11-53

P
Agric
C

Canadian Horticulturist. 570441
vol.27-28 (1904-1905)

Biological
& Medical
Serials

University of Toronto
Library

Biological
& Medical
Serials

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

STORAGE

Acme Library Card Pocket
LOWE-MARTIN CO. LIMITED